40

WPP 001/4 KHD 5,7 e

1. Edition

En

PES 6 A 75 D 410/3 RS 1197 Komb.-Nr. U 400 466 045 RSV 325-1150 A8B 494-1 L

supersedes companyKHD

engine F 6 L 912

N-150 411

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9-2,0 (1,85-2,05)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm ¹ /100 strokes	cm ³ / 100 strokes	mm	cm /100 strokes	mm
1	2	3	4	2	3	6
1130	10,5+0,1	4,4-4,5	0,2(0,35)	<u></u>		
325	8,4-8,6	0,8-1,4	0,2(0,35)			
	.					

Adjust the filed delivery from each outlet according to the values in

팅. Governor Settings

1) Uppe	r rated speed	î rev/min	Interme	diate rate	d speed	4	Lower	rated speed	3 Torque control		
Degree of deflection of control	Control rod travel mm	Control rod travel mm rev/min				Control- lever deflection	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11	
loose	800	0,3-,0,7				ca. 18	325	8,0	1130	10,5-10,6	
	X =	4,8					100	min.19,5	500 930	11,5-11,6 10,9-11,1	
ca. 51	9,5 4,0 1385	1170-1180 1220-1250 0,3-1,4					325 455-515	8,4-8,6 =2,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	III-load stop	6 Rotational speed limitat	11361	uel delivery haracteristics	Starting Idle	fuel delivery 5	(4a) Idle stop		
Test oil to	emp=40°C (194°F) cm³/1000 strokes	Note changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1130	43,5-44,5 (42,0-46,0)	1170-1180*	_	-	-	-	-	-	
		Û] 		

Checking values in brackets

BOSCH

1 min less control too traver than cor 2

^{* 1} mm less control rod travel than col 2

WPP 001/4 MWM 3,9 b 2

1. Edition

PES 4 A 80 D 320 RS 1282

RSV 350-1100 A 2 B 2129-6 R

Komb.-Nr. 9 400 085 257

MWM company

engine

D 229-4

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,20-2,30

(2,15-2,35)

mm (from BDC)

RW = 9,0 - 12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery."	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm ¹ /100 strokes	cm ³ / 100 strokes	mm	cm ¹ /100 strokes	mm
1	2	3	4	2	3	6
1100	8,7+0,1	4,9-5,0	0,25(0,4)			
350	6,4-6,6	1,0-1,3	0,2 (0,35)			
			1	1	Í	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	r rated spee		Interme	diate ra	ated speed	(4)		rated speed	3 Torque control		
Degree of deflection of control lever	travel mm	Control rod travet mm rev/min				Control- lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-1,0	-	-	-	ca.21	350	6,0	1100	8,7-8,8	
	X =	4,25					100	min.19,0		10,0-10,1	
ca.44	7,7 4,0 1300	1140-1150 1180-1210 0,3-1,7					350 590-65	6,4-6,6 0 = 2,0	900	9,1-9,4	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(4)	ill-load stop	6 Rotational- speed limitat.	11301	uel delivery naracteristics	Starting I	uel delivery 5	4a Idle stop	
rev/min	cm ¹ /1000 strokes	Note: changed to .) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ¹ /1000 strokes 7	rev/min	Control rod travel mm
1100	48,5-49,5 (47,0-51,0)	1140-1150*	500 900	50,0-52,0 (48,0-54,0) 49.0-51,0 (43,0-53,0)	100	19,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2



WPP 001/4 KHD 1 g 17

2. Edition

PES 4 A 80 D 410/3 RS 1300

RSV 325-1175 A 8 C 657-1 L

supersedes 5.85 company

F 4 L 912

Komb.-Nr. 0 400 464 129

engine tractor DX 3.70

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,85-2,05)

Control rod travel	l cm ^y		Control rod travel	Fuel delivery	Spring pre-tensionin (torque-control valv		
mm (2)	cm ¹ /100 strokes	cm ¹ / 100 strokes	mm	cm 1/100 strokes	mm		
2	3	4	2	3	6		
10,8+0,1	5,8-5,9	0,25(0,4)					
8,4-8,6	1,1-1,7	0,2 (0,3)					
	travel mm 2 10,8+0,1	travel mm (2) cm ¹ /100 strokes 3	travel cm ¹ /100 strokes cm ¹ /100 strokes 10,8+0,1 5,8-5,9 0,25(0,4)	travel	travel		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	er rated speed	d rev/min	Interme	ediate rate	d speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min	Control rod travel mm
oose	800	0,3-1,0	-	-	_	ca. 17	325	8,0	1 175	10,8-10,9
	X =	4,0						8,4-8,6	500	11,5-11,6
(a. 51	4,0	1215-1225 1260-1290 0,3-1,4					445-505=	2,0	1025	11,1-11,3

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

20	ill-load stop	6 Rotational- speed limitat	speed limitat Characteristics			fuel delivery 5	4a) Idle stop		
	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to _) rev/min 3	rev/min	cm ¹ /1000 strokes 5	rev/min	cm ¹ /1000 strokes	rev/min	Control rod travel mm 9	
175	58,0-59,0 (56,5-60,5)	1215-1225*	800	56,0-58,0 (54,0-60,0)	100	120,0-130 (117,0-133 =19,5-21,0 mm RW	,0)	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Geschaftsbereich KH. Kundendienst. Klz-Ausrustung. č. 1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

estoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 5.7 n 13

1. Edition

PES 6 A 90 D 410 RS 2293 Komb.-Nr. 9 407 083 270

ROV 300-1425 AB 740-1 L

supersedes company Daimler-Benz OM 352 118 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
2,15-2,25
(2,10-2,30) mm mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1380	11,0+0,1	7,1-7,2	0,3(0,5)			
300	7,4-7,6	1,0-1,6	0,2(0,45)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated	speed		Intermediate	rated sp	eed	Lower rated	speed		Slidings	leeve travel
Degree of deflection of control	rev/min Control rod travel	Control rod ta	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
lever	mm	rev/min (2a)		rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1400	15,2-17,8	-	-	-	ca. 14	100	min.9,0	250	0,5-0,7
ca. 58	10,0 4,0 1660	1400-1410 1520-1555 0-1,0					300 800	7,4-7,6 max.1,0	640 1035 1425	3,2-3,6 5,6-5,8 8,2
						<u>3a</u>)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		stop limitation p. 40°C (104°F) 2 intermediate speed		very characteristics 5a speed 5b	Idle	fuel delivery 6	Torque- travel	Control roo
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1380	71,0-72,0 (69,5-73,5)	1400-1410*	500	54,0-56,0 (52,0-58,0)	100	71,0-81,0 =13,7-14,1 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung C by Robert Boech GmbH. D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany Imprime en Republique Fédérale d'Allemagne par Robert Boech GmbH

Test Specifications Fuel injection Pumps 2 WPP 001/4 KHD 6,1 g and Governors

6. Edition

estoil-ISO 4113

PES 6 A 85 D 410/3 RS 2415 Komb.-Nr. 0 400 856 024

RQ 300/1250 AB 935 DL

9.85 supersedes company:

engine:

KHD BF 6 L 913 T

96 kW

2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1.85-2.05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,1+0,	8,0 - 8,1	0,3(0,45)			
300	8,3-8,5	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider eck	<u> </u>	Full-load : Setting po	•	_	cifications (4)	Idle spec	•		cifications (5)	Torque	control (3)
rev/min	Control rod travel mm 2		rev/min 3	Control rod travel mm	Control rod travel mm	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	travel
800	19,2-20	,8	800	20,0	11,1	1295-1310	300	8,4	100	nin.9,8	1250	12,1-12,2
VH =	max. 4	6°			4 , 0 1500	1370-1400 0 - 1,0				8,3-8,5 10=2,0		13,3-13,4 3,0-13,2
											1050	12,4-12,7

Torque-control travel

Speed regulation: At 1295-1310 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load di governor c Test oil ten		2	Control rod stop (3a)	Fuel deliv	ery characteristics	<u>3</u> b	Starting f	. • • • • • • • • • • • • • • • • • • •
rev/min	cm ³ /-1000 strokes 2		rev/min 3	rev/min	cm ³ /-1000 strokes 5		rev/min 6	Control 10d travel cm ³ /1CO0 strokes:/ mm
1250	80,0 - 81,0 (78,0 - 83,0)		-	800	85,0-87,0 (82,5-89,5)		100	105,0-115,0 (102,0-118,0)

Checking values in brackets

1. Edition

PES 5 A 95 D 410 LS 2426

ROV 250-1150 AB 850 DL

Komb.-Nr. 0 400 845 013 = MAN-Nr. 1-7619

company D 2555 MX/MXF 141 kW/2300 min-1

WPP 001/4 MAN 9,2 a 3

1 - 3 - 5 - 4 - 2 je $72^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min		Fuel delivery cm³/100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2]
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated :	speed			Intermediate	rated sp	eed	-		Lower	rated	speed			Sliding s	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	mm	ارق	Degree of deflection of control lever	rev/min	Contr travel mm		d (4)	Degre deflec of con lever	tion	rev/min	Control travel mm	rod	rev/min	mm
1	2	3		4	5	6			7		8	9		10	11
ca. 50	1170 1220 1280 1350	9,0-14, 1,0- 7,	0	•	-		-		ca.	13	50 150 250 350 410	7,7- 6,6- 4,2- 0 -	9,8 7,2	480	0,5-1,2 3,2-4,0 5,0-5,4 8,4
									3a						

0.4 mm Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro- Test oil ten		Rotational-speed 2b limitation intermediate speed	high idle s	very characteristics 5a speed 5b	ldle switchii	. 0	Torque travel	Control 5 Control roc travel
1	2	3	4	5	6	7	8	9
1150	114,5-116,5 (112,5-118,5		800 500	114,0-117,0 (112,0-119,0) max. 113,5 (max. 115,5)	250 Chan	146,5-156,5 7 mm RW ge-over point 100 min-1		- 0,3-0,5

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MAN 9.2 a 4

1. Edition

PES 5 A 95 D 410 LS 2426 Z

RQV 250-1150 AB 850 DL

company: MAN

supersedes-

Komb.-Nr. 0 400 845 021 = MAN-Nr. 1-7555

engine: 124 kg/2200 =

1 - 3 - 5 - 4 - 2 je $72^{\circ} \div 0.5^{\circ} (\div 0.75^{\circ})$

124 kW/2300 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediat	e rated sp	eed	Lower rated	speed		Sliding s	leeve travel
deflection	rev/min Control	Control rod (18	/ aeriection		Control rod travel	Degree of deflection		Control rod travel		1
of control	rod travel mm	rev/min (28	of control lever	rev/min	mm (4)	of control lever	rev/min	nım (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1170 1120 1280 1350	9,0-14,0 1,0- 7,8	•	_	-	ca. 15	50 150 250 350 410	7,7-11,0 6,6- 9,8 4,2- 7,2 0 - 3,4	480 800	0,5-1,2 3,2-4,0 5,0-5,4 8,4
						(3a)				

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

rev/min cm³/1000 strokes rev/min m strokes rev/min cm³/1000 strokes rev/min m strokes rev/min cm³/1000 strokes rev/min m strokes rev/min cm³/1000 strokes rev/min m strok	Full-load de Control-roc Test oil ten		Rotational-speed (2b) limitation intermediate speed	Fuel deliv	very characteristics (5a) speed (5b)	Starting Idle switchir		Torque travel	Control rod
1150 109,5-111,5 1190-1205* 800 112,0-115,0 100 146,5-156,5 1100 500 0,3 112,0-117,0 112,5 250 7 mm RW	rev/min	cm³/1000 strokes	rev/min (4a)	rev/min	i _	rev/min	cm ³ /1000 strokes	rev/min	
(max. 114,5) Change-over point 180-100 min-1	1150				(110,0-117,0) max. 112,5	250 Chan	=15,7-16,3 mm RW 7 mm RW ge-over point	500	0 0,3-0,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 KHD 15,8 b

3. Edition

estoil-ISO 4113

PE 10 A 95 D 610/4 LS 2452

ROV 300-1250 AB 1129 L

supersedes 4.85

Komb.-Nr. 0 400 649 223 1 - 10- 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2

 $0 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315^{\circ} + 0,5^{\circ} (-0,75^{\circ})$

F 10 L 413 F 228 kW (310 PS) 2500 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm 2	(1,95-2,15) Fuel delivery cm³/100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,3+0,1	9,1 - 9,3	0,3(0,6)			
300	6,4-6,6	1,2 - 1,6	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated	speed		Intermediat	e rated sp	eed	Lower rated	speed		Stiding s	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rev/min 2	of control	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min	Control rod travel mm 3	rev/min	①
max.	1380	15,2-17,8	-	-	-	ca. 18		min.8,0		1,2-1,3
ca.51	9,3 4,0 1 5 00	1290-1300 13 7 5-1405 0 - 1,0					300	6,4-6,6	1000	,6-2,9 5,4-5,6 7,7-7,8 8,7
		6.0				3a				

Torque control travel a = 0,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

	d stop mp. 40°C (104°F) 2	limitation intermediate speed	high idle s	very characteristics 5a	idle switchi	ng point	travel	Control cod
rev/min	cm³/1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	88	9
1250	90,5 - 92,5 (88,5 - 94,5)	1290-1300 *	800	90,0 - 93,0 (88,0 - 95,0)	100	1 20,0 - 130,0 (117,0-133,0)500	

Checking values in brackets

* 1 mm less control rod travel than col. 2

40

WPP 001/4 KHD 6,1 e 2

1. Edition

Er

PES 6 A 95 D 410 RS 2471 Komb.-Nr. 0 400 876 330

RSV 325-1400 A2C 2205 L

supersedes KHD

company BF 6 L 913 C

engine 125,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,85-2,05)

mm (from BDC)

Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
mm (2)	cm ³ /100 strokes	100 strokes	mm	cm1/100 strokes	mm
2	3	4	2	3	6
10,9+0,1	8,8-9,0	0,35(0,6)			
7,5-7,7	1,0-1,6	0,35(0,55))		
	ļ				
	mm 2 10,9+0,1	travel cm ¹ /100 strokes 3 10,9+0,1 8,8-9,0	travel mm 2 cm ³ /100 strokes 10,9+0,1 8,8-9,0 0,35(0,6)	travel	travel

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm		Interme	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm 9	3 To	rque control Control rod travel mm
loose	800 x =	0,3-0,7 4,0	-	-	-	ca. 22	325 100 325	7,1 min.19,5 7,5-7,7	1400 500	10,9-11,0 10,9-11,1
ca. 58	9,9 4,0 1675	1440-1450 1545-1575 0,3-1,4					625-685			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	2b Full-load stop est oil temp, 40°C (104°F) Rotation speed lin			uel delivery naracteristics	Starting I	luel delivery 5	4a) idle stop	
rev/min	cm ³ /1000 strokes	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm
LDA 1400	0,7 bar 88,0-90,0 (86,0-92,0)		LDA 850 LDA 650	0,7 bar 78,5-81,5 (76,0-84,0) 0 bar 64,0-66,0 (62,0-68,0)	100	115,0-125, (112,0-128, = 15,6-16 mm RW	0)	

Checking values in brackets



^{* 1} mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 e 2

- 2 -

Test at n =

500

rev/min decreasing pressure – in har gauge pressure

300	<u>,</u>		
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 ARS 2471 + A2C 2205 L	0,7	0 0,22 0,18	10,9-11,1 10,2-10,3 10,7-10,8 10,5-10,6

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-150 &1

40

WWP 001/4 MAN 9,2 f 1 2. Edition

En

PES 5 A 95 D 320 LS 2504 Komb.-Nr. 0 400 845 079

RQ 250/1100 AB 1197 R

supersedes 2.85

company: MAN

engine:

D 2565 MUL 141 kW/2200 min-1

MAN-Nr. 2-7500

1-3-5-4-2 je 72° <u>+</u> 0,5° (<u>+</u> 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection, Pump, Settings

Port closing at prestroke

(1,45-1,65)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1 100 250	11.3+0.1 6,4-6,6		0,3(0,6) 0,3(0,5)		3	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	\sim	Full-load :	•	•	cifications (4)	idle spe	•		cifications (5)	Torque	control (3)
rev/min 1	Con(to) rod travel mm	rev/min 3	Control rod travel rom	Control tod travel mm	rev/min		Control rod travel rmm	rev/min	Control rod	rev/min	travel
600	15,6-16,4	600	16,0		1145-1160 1195-1225 0-1,0		6,5	100 250 370	min. 8,0 6,4-6,6 410=2,0	1100 600 940 1015	11,3-11,4 11,7-11,8 11,5-11,7 11,4-11,6
	ontrol travel		0.40				11	45-11 <i>6</i>	00 min -1		

on flyweight assembly dimension a =

· __

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop (3a)	Fuel delive	ery characteristics	Starting f	uel delivery d 1 Control
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm ³ /1000 strokes:/ mm
1100	114,0-116,0 (112,0-118,0)	~	800 500	115,5-118,5 (113,0-121,0) 113, 0-116,0 (110,5-118,5)	100	147,0-157,0 (144,0-160,0) = 13,7-14,3 mm RW
					250	6,5 mm RW

Checking values in brackets

11.85

BOSCH

WPP 001/4 DEE 7,6 c 2

1. Edition

PES 6 A 95 D 410 RS 2522 Komb.-Nr. 9 400 230 014

US-EP/RSV 400-1100 A2B 2055 DL supersedes

company John Deere 6466 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,85-1,95 (1,80-2,00)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm ³ /100 strokes	cm ¹ / 100 strokes	mm	cm ¹ /100 strokes	mm
1	2	3	4	2	3	6
1100	10,5+0,1	10,1-10,3	0,3 (0,6)			_] .
400	5,9-6,1	1,2-1,6	0,4 (0,5)	!		
				•		
] 		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	r rated speed	I rev/min	Interm	ediate rate	d speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection	Control red travel	Control rod travel				Control- lever		Control rod travel		Control rod travel
of control lever	mm 2	mm rev/min	4	5	6	deflection in degrees 7	rev/min 8	mm 9	rev/min 10	mm 11
loose	800	0,3-1,0	-	**	-	ca. 22	400	5,5	1100	10,5+0,1
	X =						100	min. 19,0	650	11,7+0,1
ca. 43	9,5 5,2 1350	1150 1200 0-1,0					400 650-680	5,9-6,0 0 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	Rotational- speed limitat		uel delivery naracteristics	Starting (fuel delivery 5	(4a) Idl	e stop
rev/min	cm1/1000 strokes	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm 9
LDA 1100	0,8 bar 100,5-102,5 (98,5-104,5)	1150*	LDA 650 LDA 550	0,8 bar 112,5-115,5 (110,5-117,5) 0 bar 86,0-92,0 (84,0-94,0)	100 400	165,0-185 =19,0-21,0 mm RW 12,0-16,0 (10,0-18,0))	6,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

DEE 7,6 c 2

Test at n =

550

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 ARS 2522 + RSVA2B2055DL	0,24	0,10	11,3-11,4 10,4-10,8

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

413

A43

En

40

WPP 001/4 KHD 4,1 c 5 1. Edition

En

PES 4 A 80 D 410/3 RS 2523

RSV 325-900 A 1 C 602-2 L

supersedes KHD

company F 4 L 913

Komb.-Nr. 0 400 864 064

engine 43,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

1,9-2,0 (1,85-2,05)

mm (from BDC)

RW = 9,0 - 12,0 mm

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ¹ /100 strokes	cm ¹ / 100 strokes 4	mm 2	cm / 100 strokes	m.m 6
880	12,2+0,1	5,1 - 5,2	0,25 (0,4)			
325	9,3-9,5	0,9 - 1,5	0,2 (0,35			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection	Control rod	Control rod travel	Interme	diate rate	d speed	Control- lever	}	rated speed Control rod travel		rque control Control rod travel mm
of control lever	mm 2	mm rev/min	4	5	6	deflection in degrees 7	rev/min 8	9	rev/min 10	11
loose	800	0,3-0,7	_	-	-	ca. 23	325	8,0	_	-
	Χ =	3,25					325	7,9 - 8,1		
ca.46	11,2 4,0 1110	920-930 955-985 0,3-1,4					350 - 4	0 = 2,0**		

** Set idle-speed auxiliary spring at 2 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat	3a Fu	uel delivery paracteristics	Starting (uel delivery 5	(4a) Idi	e stop
rev/min	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to :) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm
880	50,5 - 51,5 (49,0 - 53,0)	920-930 *	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

BOSCH

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WPP 001/4 KHD 6,1 d 5. Edition

PES 6 A 80 D410/3 RS2527 Komb.-Nr. 0 400 866 084 EP/RSV 325-1150 A8 B2014DL

A8 C2014 L

supersedes 1.85

KHD engine: F6 L912

> 74kW (102PS) 2300 min⁻¹

tractor DX 110 -

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
1,90-2,00
Port closing at prestroke
(1,85-2,05)

mm (from BDC)

ort closing at pres		(1,85-2,05)	(((()							
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)					
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm					
1	2	3	4	2	3	6					
1150	11,8+0,	5,6 - 5,7	0,2(0,35			·					
325	8 ,9 -9 ,1	0,9 - 1,5	0,2(0,3)								

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	e rated spe	eed	4 Lowe	r rated spe	ed	(3) To	rque control
Degree of deflection of control lever	rev/min	Control rcd travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7				ca.21	325	8,5		11,8+0, 12,0+0,
	X=							8,9-9,1		12,5+0, 12,5+0,
5. 5 6		1190-1200 12 5 5-12 8 5 0,3-1, 4					490 -5 5	0 = 2,0	430	12,510,

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-	oad stop	6 Rotational- speed limitat.		el delivery aracteristics	Starting Idle	Starting fuel delivery		5a Idle stop	
Test oil ter rev/min 1	np. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 stŕokes 7	rev/min 8	Control rod travel mm 9	
1150	56,0 - 57,0 (54,5 - 58,5)	1190-1200 *	775	54,0 - 56,0 (52,0 - 58,0)	-	•	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 KHD 6,1 d 1 2. Edition

PES6A 85 D 410 RS 2537 Komb.-Nr. 0 400 876 270 RSV 325-1150 A8B2020 DL A8C2020 DL supersedes 2.84 KHD company

BF 6 L 913 engine

97 kW/2300 min⁻¹ tractor DX145-S15

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

 $107kW/2300 min^{-1}$ (2)

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9 -2,0 (1,85-2,05)

mm (from BDC)

		, ,				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm ¹ /100 strokes	cm³/ 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1150	11,0+0,1	8,0-8,2	0,3(0,45)			
325	6,8-7,0	1,0-1,6	0,2(0,4)			一 .
1	İ					
				<u> </u>	_L	_1

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

1 Uppe	r rated speed	t rev/min	Interme	diate rated	speed	(4)	Lower	rated speed	3 Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
loose	800	0,3-1,0	-	_	-	ca.21	325 100 325	5,0 min.19,5 5,4- 5,6			
ca.55	10,0	1190-1200				- - 	510-570				
(2a)	4,0 1350	1225-1255 0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) F	ull-load stop	6 Rotational- speed limitat	3a Fuel delivery characteristics		Starting I	Starting fuel delivery 5 4a Idle stop			
Test oil t	emp. 40°C (104°F) cm³/1000 strokes 2	Note changed to .) rev/min		cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
LDA 800	0,7 bar 77,0-78,0 (75,0-80,0) 0,5 bar 78,0-81,0 (75,5-82,5)	1190-1200*	LDA 650 LDA 500	0,3 bar 77,0-79,0 (74,5-81,5) 0 bar 61,0-63,0 (58,5-65,5)	100	120,0-130,	0 -	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

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B. Governor Settings

(1) Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	r rated spe	ed		que control
Degree of deflection of control lever	rev/min	Control rod travel mm 3	Degree of deflection of control lever	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever	rev/min 8	Control rod travel mm 9		Control rod travel mm 11
loose	800	0,3-0,7	-	•	-	ca.24	325	6,4		1,0+0,
	X =	6,0						min 19,5 6,8-7,0	-	1 _: 7+0,2 2,5+0,
ca. 60		1190-1200 12 70-1300 0,3-1,4					590-6	50 =2,0		

C. Settings for Fuel Injection Pump with Fitted Governor

	2 Full-to	ad stop	Rotational- speed limitation	speed (3a) Fuel delivery		Starting fuel delivery idle		(5a) (die stop	
	Test oil temp. 40°C (104°F) rev/min cm³/-1000 strokes 1 2		Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm
(2)	LDA 1150	0,7 bar 79,5 - 81,5 (77,5 - 83,5)	1190-1200*	LDA 800 (6a) LDA	0,7 bar 88,0 - 91,0 (86,0 - 93,0) 0 bar 60,0 - 63,0 (58,0 - 65,0)	100	120,0-130, 117,0-133, = 17,4-18, mm RW	0 -	-

Checking values in brackets

*1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500	rev/min decreasing pressure - in inversely to the control of the c	bar gauge pressure (g.p.)	
Pump/governor	Setting	Measurement	XX资涨涨&tion Control rod traxxx 资州资产流差
	(g.p.) bar	(g.p.) bar	mm (1) ^{XX}
2537 mit 2020DL	0,70	0,3 7 0,09 0	12,5 - 12,6 12,2 - 12,3 10,6 - 10,9 10,6 - 10,7
		·	

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 HAN 10.8 f 1

2. Edition

PE 4 A 95 D 420 RS 2556 Komb.-Nr. 0 400 674 042 RSV 350-1100 A 8 B 1120 R A 8 C 1120 R supersedes 12.83 company MF-Hanomag D 943 enaine

1-2-4-3 je $90^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

** Cold-start test according to VDT-I-420/114

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,15-2,25 Port closing at prestroke (2,10-2,30) mm

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm³/100 strokes	cm ¹ / 100 strokes	mm	cm 1/100 strokes	mm
1	2	3	4	2	3 🔑	6
1100	10,0+0,1	9,3-9,5	0,3 (0,6)			
400	7,9-8,1	4,0-5,0	0,35(0,55)		•
	1				ŀ	
				1	·	

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

1 Uppe	r rated speed	l rev/min	Interme	diate rated	speed	(4)		raled speed	3 Torque control		
Degree of deflection of control	Control rod travel	Control rod travel mm rev/min				Control- lever deflection	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11	
loose	800	0,3-1,0	-	-	-	ca. 21	400	7.5	1100	10,0-10,1	
	X =	3,75						min. 19,0		10,4-10,6	
ca.52	9,0 4,0	1140-1150 1205-1235					400 580-640	7,9-8,1 =2,0	500	10,9-11,0	
(2a)	1345	0,3-1,7					600	max. 1,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Ful	II-load stop	6 Rotational- speed limitat	uel delivery naracteristics	Starting Idle	fuel delivery 5	4a) idle stop		
1	mp. 40°C (104°F) cm ³ /1000 strokes	Note: changed to :) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm / 1000 strokes	rev/min	Control rod travel mm
t	2	3	4	5	6	7	8	9
1100	93,0-95,0 (91,0-97,0)	1140-1150*	700	100,0-103,0 (98,0-105,0)	100	19,5-21,0 mm RW	-	-
			500	92,0-94,0 (90,0-96,0)		**		

Checking values in brackets

* 1 mm less control rod travel than col 2

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WPP 001/4 HAN 10,8 i 1

2. Edition

A8C1127 R

PE 6 A 95 D 320 RS 2557

RSV 350-1100 A8B1127 R

Komb.- Nr. 0 400 676 159

MF-Hanomag

D 963 A/1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-isO

(2,10-2,30)

mm (from BDC)

RW = 9.0 - 12.0 mm

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm ³ /100 strokes	cm ¹ / 100 strokes	mm	cm //100 strokes	mm
1	2	3	4	2	3	6
1100	13,2±0,1	12,4-12,5	0,3(0,6)			
350	6,6-6,8	1,4- 2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

(1) Uppe	r rated speed	l rev/min	Intermediate rated speed			(4)	Lowe	r rated speed	3 Forque control		
Degree of deflection	Control rod travel	Control rod travel				Control- lever		Control rod travel		Control rod travel	
of control lever	mm	mm rev/min				deflection in degrees	rev/min	mm	rev/min	mm	
<u> </u>	2	3	14	5		<u> </u>	8	9	10	11	
loose	800	0,3-1,0	-	-	-	ca.19	350	6,2	1100	13,2-13,3	
	X =	3,75					100	min. 19,5		13,2-13,4	
ca.50		140-1150 220-1250 0,3-1,7					350 470-53	6,6-6,8 0 = 2,0	400	13,5-13,9	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ult-load stop emp 40°C (104°F)	Rotational- speed limitat	Starting fuel delivery 5 4a Idle stop Idle Control rod					
rev/min 1	cm ³ /1000 strokes 2	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm 9
1100	124,0-125,0 (122,0-127,0)	1140-1150*		118,0-121,0 (115,5-123,5)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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40

WPP 001/4 KHD 9,6 n 1
1. Edition

En

PE 6 A 95 D 410 LS 2587 Komb.-Nr. 0 400 646 266

RQV 300-1150 AB 1088 L

supersedes -

company: KHD

ngine: F 6 L 413 FW

102,0 kW; 2300 min⁻¹
Tunnelling or mining vehicles

1-6-5-4-3-2 $0-75-120-195-240-315^{\circ}+0,50^{\circ}$ (+ 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuei delivery cm³/100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,0-9,2	7,8 - 8,0	0,3(0,6)			
300	6,2-6,3	1,4 - 2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Sliding sleeve travel	
deflection	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	onom y s	1
	mm		lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1150 1350		-	-	-	ca. 11	100	min.7,5	300	1,2-1,3
	1000						300	5,9-6,1		3,1-3,4
ca. 64	8,0	1190-1200		į				-670 = 2,0	1190	8,5
ļ	4,0	1220-1250				320-400			ľ	
						(3a)				

Torque control travel a = 0.50 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deli-	very characteristics 58 speed 5b	Starting Idle switchir		Torque travet	Control rod	
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min		
1150	77,5-79,5 (75,5-81,5)	1190-1200 *	800	80,5-82,5 (79,0-84,0)	100	119,0-129,0	800	9,0+0,1 9,5+0,1 9,5+0,1	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Set control-rod stop to contact at 500 min/1

10.85

BOSCH

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WPP 001/4 KHD 12,7 n 1

1. Edition

En

PE 8 A 95 D 410 LS 2588 Komb.-Nr. U 400 646 124 RQV 300-1150 AB 1088 L

supersedes =

company: KHD

engine: F 8 L 413 FW

136,0 kW; 2300 min⁻¹
Tunnelling or mining vehicles

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 $0 - 45 - 90 - 135 - 180 - 225 - 270 - 315^{\circ} + 0,50^{\circ} (+ 0,75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

,59-1,60 AE 4 CE \ mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,0-9,2	7,8 - 8,0	0,3(0,0)			
300	6,2-6,3	1,4 - 2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 ''	pper rated speed egree of rev/min Control rod (18				1_ 1				Lower rated speed Degree of Control rod				Sliding sleeve travel	
deflection	Control rod travel	travel (de of	flection control		travel	roa <u> </u>	deflection of contro	n		travel	oa		1
lever	mm	rev/min (2	28) lev	/er	rev/min	mm	(4)	lever		rev/min	mm	(3)	rev/min	mm
1	2	3	4		5	6		7		8	9		10	11
max.	1150	15,2-17,	8	-	-		-	ca. 1	1	100	min_7	,5	300	1,2-1,3
ca. 64	8,0 4,0	1190-120 1220-125								300 610-	5,9-6 670 =2		600 1 i 90	3,1-3,4 8,5
	1350	0 - 1,						320-4	od		570 -2	.,0	1150	0,5
								(3a)						

Torque control travel a = 0,50 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten		Rotational-speed (2b) limitation intermediate speed			Starting Idle switching		Torque travel	Control rod	
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm 9	
1150	77,5-79,5 (75,5-81,5)	1190-1200*	800	80,5-82,5 (78,5-84,5)	100	119,0-129,0	800	9,0+0,1 9,5+0,1 9,5+0,1	

Checking values in brackets

* 1 mm less control rod travel than cot 2

Set control-rod stop to contact at 500 min/1

10.85

BOSCH

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PE 10 A 95 D 610/4 LS 2589 Komb.-Nr. U 400 649 219

ROV 300-1150 AB 1047 DL

supersedes -

company. KHD

F 10 L 413 FW engine

170 kW; 2300 min⁻¹

1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2 $0-27-72-99-144-171-216-243-288-315^{\circ}+0,50^{\circ}+(0,75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(1,45-1,60)	mm (from BDC)	=		
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	100 strokes	mm 2	cm³:100 strokes	mm 6
1150	9,1+0,1	7,9 - 8,1	0.300.51	-	<u> </u>	
1150	3,140,1	7,9 - 0,1	0,3(0,6)	<u> </u>		
300	6,2-6,3	1,4 - 2,0	0,3(0,5)			
					}	
			1			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Sliding s	leeve travel
deflection	rev/min Control	Control rod (1a)	Degree of deflection		Control rod travel	Degree of deflection	ļ	Control rod travel		1
	rod travel mm	rev/min (2a)	of control lever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 11	100	min.7,5	300	1,2-1,3
ca. 64	8,0 4,0	1190-1200 1230-1260					300 620-	6,2-6,3 680 =2,0	600 1190	3,1-3,4 8,5
	1350	0 - 1,0				320-410		-,-		, , ,
						3a)	-			

Torque control travel a = 0,50 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed 2 limitation intermediate speed	Fuel deli high idle	very characteristics 5a speed 5b	Starting Idle switchin	,	Torque- travel	Control Cod	
rev/min	cm³/1000 strokes	rev/min 4	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm 9	
1150	78,5-80,5 (76,5-82,5)	1190-1200 *	800	83,0-80,0 (80,5-88,5)	100	116,5-126,5 (113,5-129,5)	500 895	9,1+0,1 9,6+0,1 9,4+0,2 9,1+0,3	

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Checking values in brackets

* 1 mm less control rod travel than col. 2

40

WPP 001/4 KHD 1 g 12 2. Edition

En

PES 6 A 85 D 410 RS 2591 Komb.-Nr. 0 400 876 320 RSV 325-1150 A 8 C 2020

supersedes 10.84

company KHD

engine BF 6 L 913

117 kW/2300 min⁻¹ tractor DX 7.10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuei Injection Pump Settings

Port clouing at prestroke

2,5 - 2,6 (2,45-2,65)

mm (from BDC)

RW = 9,0 - 12,0 mm

\	, ,				
Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning (torque control valve)
mm (2)	cm ¹ /100 strokes	cm // 100 strokes	mm	cm·/100 strokes	mm
2	3	4	2	3	6
12,4+0,1	8,6 - 8,7	0,3(0,45)			
7,4-7,€	1,0 - 1,6	0,2(0,4)	,		·
	·	;			
	Control rod travel mm 2 2 12,4+0,1	travel mm 2 cm 1/100 strokes 3 12,4+0,1 8,6 - 8,7	Control rod travel mm 2 cm ¹ /100 strokes 2 12,4+0,1 8,6 - 8,7 0,3(0,45)	Control rod travel mm 2 cm 1/100 strokes 3 12,4+0,1 8,6 - 8,7 Difference cm 1/100 strokes 4 Control rod travel mm 2	Control rod travel mm 2 cm ¹ /100 strokes 2 cm ² /100 strokes 3 cm ² /100 strokes 4 cm ² /100 strokes 2 cm ² /100 strokes 4 cm ² /100 strokes 2 cm ² /100 strokes 3 cm ² /100 strokes 4 cm ² /100 strokes 2 cm ² /100 strokes

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	Control rod travel mm	rev/min Control rod travel mm rev/min	Interme	ediate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm 9	1(3)	rque control Control rod travel mm
loose	800 x =	0,3-0,7 6,0	-	-	-	ca.25	325 100 325	7,0 nin.19,5	1200 500	12,4-12,5 13,5-13,6 12,9-13,1
ca. 63	11,4 4,0 1515	1240-1250 1350-1380 0,3 - 1,4					620-680	7,4-7,6 = 2,0	925	12,3-13,1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(4)	ull-load stop	6 Rotational- speed limitat		nel delivery paracteristics	Starting I	uel delivery 5	(4a) lgl	\bigcirc	
rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	revimin	cm ³ /1000 strokes	rev/min	cm ¹ /1000 strokes 7	rev/min 8	Control rod travel mm	
DA 1200	0,7 bar 85,5-86,5 (83,5-88,5)	1240-1250*	LDA 500	0 bar 65,0-67,0 (63,0-69,0)	100	110,0-120, (107,0-123,		-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en Republique Fédérale d'Allemagne par Robert Bosch GmbH.

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure

KHD 1 g 12

- 2 -

Pump/governor	Setting	Measurement	diminution Control rod traveti- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 ARS2591 +RSVA 8 C 2020	0,70	0 0,28 0,11	13,5 - 13,6 12,2 - 12,3 13,2 - 13,3 12,6 - 12,8

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

40

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 n 2 1. Edition

En

PE 12 A 95 D 610 LS 2590 Komb.-Nr. 0 400 640 107

RQV 300-1150 AB 1047 DL

supersedes -

company: KHL

engine: F 12 L 413 FW 204 kW; 2300 min-1

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 120 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315° + 0,50° + (0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,50-1,60

mm (from BDC)

Rotational speed	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1150	9,1+0,1	7,9 - 8,1	0,35(0,6)			
300	ნ,4-6,6	1,4 - 1,8	0,3 (0,5)	<u> </u>		7

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed	•		Intermediate	rated sp	eed		Lower rated	spead			Sliding sleeve travel	
	rev/min Control rod travel	Control rod travel mm rev/min		Degree of deflection of control lever	rev/min	Control rod travel		Degree of deflection of control fever	rev/min	Control roc travel	3)	rev/min	mm (1)
1	2	3		4	5	6		7	8	9		10	11
max.	1190	15,2-17	,8	-	-	-		ca. 14	100	min.8,0)	300	1,2-1,3
ca. 64	8,1 4,0	1190-120 1225-125							300	6,4-6,6	ô	600 190	3,1-3,4 8,5
	1350	0 - 1					ı	320-425				,,,,	,,,
								(3a)					

Torque control travel a = 0,50 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 2b fimitation intermediate speed	Fuel deli high idle :	very characteristics 5a	Idle	fuel delivery 6	Torque- travel	Control co
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1150	78,5-80,5 (76,5-82,5)	1190-1200 *	800	83,0-86,0 (80,5-88,5)	100	116,5-126,5 113,5-129,5)	500 900	9,1+0, 9,6+0, 9,4+0,2 9,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

40

WPP 001/4 KHD 1 g 16

2. Edition

En

PES 6 A 85 D 410 RS 2591 Komb.-Nr. 0 400 876 326

RSV 325-1150 A 8 C 2194 L

supersed 4.85 KHD

company BF 6 L 913
engine tractor DX 7.10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.45-2.65)

mm (from BDC)

RW = 9,0 - 12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm1/100 strokes	cm ¹ / 100 strokes	mm	cm1/100 strokes	mm
1	2	3	4	2	3	6
1200	12,4+0,1	8,4-8,5	0,3(0,45)			
325	7,4-7,6	1,0-1,6	0,2(0,4)			
	•	:				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	cr rated speed rev/min Control rod Control rod travel mm rev/min 2 3		min C		Control- lever deflection in degrees		rated speed Control rod travel mm	3 fo	rque control Control rod travel mm	
loose	800	0,3-0,7 6,0	-	<u>-</u>	<u>-</u>	ca. 17	325 100	7,0 min.19,5	1200	12,4-12,5
ca. 54	11,4 4,0 1515	1240-1250 1350-1380 0,3-1,4					3 25 620 - 6	7,4-7,6 BO=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

C	II-load stop	6 Rotational-speed limitat 3a Fuel delivery characteristics			Starting fuel delivery 5 4a Idle sto				
Test oil te rev/min	emp 40°C (104°F) cm ³ /1000 strokes	Note changed to) rev/min	rev/min	cm³/1000 strokes	rev/min	cm ¹ /1000 strokes	ten/wiu	Control roo travel mm	
1	2	3	4	5	6	7	8	9	
1200	84,0-85,0 (82,0-87,0)	1240-1250*	_	_	100	17,0-17,5 mm RW	-	-	
			İ						

Checking values in brackets

* 1 mm less control rod travel than col 2

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4

WPP 001/4 KHD 6,1 k

3. Edition

PES 6 A 85 D 410/3 RS 2592

Komb.-Nr. 0 400 836 026

RQV 300-1250 AB 1089 L

supersedes9.82 company: KHD BF 6 L 913

estoli-150 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at prestroke mm (from BDC) <u>(2,15-2,35)</u> Control rod Control rod travel Rotational speed Fuel delivery Difference **Fuel delivery** Spring pre-tensioning (torque-control valve) rev/min cm³/100 strokes 100 strokes mm cm³/100 strokes 1250 11,9+0, 9,1-9,2 0,3(0,45)300 6.8 - 7.00.9 - 1.50,2(0,4)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated a	peed rev/min	Company of C	Intermediate	rated sp	4	Lower rated speed			Sliding sleeve travel	
deflection		Control rod (la)	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		ı O
lever	mm	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1250	15,2-17,8	_		-	ca. 14	100	min.8,4	250	0,5-0,7
ca. 68	10,9						300	6,8-7,0	550 900	3,4-3,6 5,2-5,4
	4,0	1370-1400							1250	8,1
	1500	0-1,0				325-500				
						3a				

Torque control travel a = 0,40 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil-ten		Rotational-speed (2b) timitation intermediate speed	Fuel delic high idle s	very characteristics 58 speed 56	Starting Idle switchin		Torque- travel	control 5
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
LDA 1250	0,7 bar 91,0-92,0 (89,0-94,0)	1290-1300*	LDA 800 LDA 500	0,7 bar 86,5-89,5 (84,0-92,0) 0 bar 62,5-65,5 (60,5-67,5)	100	110,0-120,0 (107,0-123,0		12,2+0

Checking values in brackets

1 mm less control rod travel than col. 2



D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 k

-2-

Test at n =

500

rev/min decreasing pressure ~ in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 ARS 2592 + AB 1089 L	0,7	0 0,40 0,28	12,2-12,3 10,8-10,9 12,0-12,1 11,3-11,5

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

B4

WPP 001/4 KHD 12.7

ROV 300-1250 AB 1128 L PE 8 A 95 D 410 LS 2609 Komb.-Nr. 0 400 648 129

9.85 supersedes

KHD company:

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je 45 ° $^{+}0,5$ ° ($^{+}0,75$ °)

engine:

BF 8 L 413 F 235 kW (320 PS)

2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
1,8-1,9
Port closing at prestroke (1,75-1,95) mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (forque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1250	11,6+0,1	11,9-12,1	0,35(0,6)			
300	6,6-6,8	1,6-2,2	0,35(0,55)		
	·			Ī]	}
					<u></u>	

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	speed			Intermediate	rated sp	eed	Lower rated	speed		Citation -	
deflection	rev/min Control rod travel mm 2	mm	1a 28	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm
max.	130 0	15,2-17,	8	•	-	••	ca.14	100 300	min.8,2 6,6-6,8	320 600	1,7-1,8 3.0-3.2
ca. 65	4,0	1290-130 1360-139	O					300	10,0-0,0		5,4 - 5,6 8,5
	1450	0 - 1,	0				315 – 420				

Torque control travel a = 0.75 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Irmitation intermediate speed	30		Starting Idle switchir		Torque- travel	Control 6
rev/min	cm³/1000 strokes	rev/min 4e	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9_
LDA 1250	0,7 bar 119,0-121,0 (117,0-123,0)	1290-1300 *	LDA 750 LDA 500	0,7 bar 12 4,5-127,5 (12 2,5-129,5 0 bar 10 5,0- 10 7,0 10 3, 0-10 9,0)		130,0-140,0 (127,0-143, = 14,6-14,8 mm RW	o)750 96 0	11,6+0, 12,4+0, 12,2+0, 11,7+0

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

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D. Adjustment Test for Manifold Pressure Compensator

KHD 12,7 n

- 2 -

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure increasing

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 A LS2609 + AB 1128	0,70	0 0,27 0,23	12,4-12,5 11,7-11,8 12,1-12,2 11,7-11,9
	,		

Notes.

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

40

WPP 001/4 KHD 4,1 d 4

1. Edition

En

PES 4 A 85 D 410/3 RS 2638

Komb.-Nr. 0 400 864 065

RSV 325-1400 A 8 C 540-2 L

supersedes COMPAN KHD BF 4 L 913 Engine 35.0 kW

Testoil-iSO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,45-2,65)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	cm ¹ / 100 strokes	mm	cm ¹ /100 strokes	mm
1250	11,6+0,1	7,0-7,1	0,3 (0,5)	2	3	6
325	8,0-8,2	1,0-1,6	0,25(0,45			
		·				

Adjust the fuel delivery from each outlet according to the values in E

B. Governor Settings

Degree of deflection of control lever	crated speed Control rod travel mm	rev/min Control rod travet mm rev/min	Interme	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	\ \ \ \ \	rque control Control rod travel mm
loose	800 x =	0,3-0,7 4,75	-	_	-	ca.21	325 100	7,7 min.19,5	500	11,6-11,7 12,2-12,3
2a.60	10,6 4,0 1560	1290-1300 1390-1420 0,3-1,4					325 630-69	8,1-8,3	1000	12,0-12,2

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Fu	ill-load stop	S Rotational- speed limitat	11.324	uel delivery naracteristics	Starting t	uel delivery 5	(4a) Idi	e stop
Test oil te rev/min 1	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm
1250	70,0-71,0 (68,0-73,0)	1290-1300*	800	66,0-68,0 (63,5-70,5)	-	-	-	-
			1000	66,0-68,0 (63,5-70,5)				
				(33,3 (3,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

40

WPP 001/4 KHD 4,1 d 1 2. Edition

En

PES 4 A 85 D 410/3 RS 2638

RSV 325-1150 A 2 C 707-2 L

supersedes 8.85 company KHD engine BF 4 L 913 67 kW/2300 min -1

Komb.-Nr. 0 400 864 062

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,45-2,65)

mm (from BDC)

RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm ^{-/} 100 strokes 4	Control rod travel mm	Fuel delivery cm /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,7+0,1	8,2 - 8,3	0,3 (0,45)			
325	8,1-8,3	1,0 - 1,6	0,25(0,45)			
				:		
ı						

Adjust the fuel delivery from each outlet according to the values in E

B. Governor Settings

1 Uppe	r rated speed		Intermed	diate rated	speed	(4)	Lower	rated speed	!(ゞ /	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control- lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 0,7	-	-	-	ca. 21	325	7,7	1000	12,7-12,8
	X =	4,25					100 325	min. 19,5		13,7-13,8
ca. 43	11,7 4,0 1340	1040-1050 1175-1205 0,3-1,4						8,1-8,3 15 = 2,0	800 900	13,3-13,5 12,9-13,1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

Test oil te	emp 40°C (104°F)	Rotational- speed limitat Note- changed to _)	11.001	uet delivery paracteristics cm ³ /1000 strokes	Starting I Idle	uel delivery 5	40	e stop Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1000	0,7 bar 81,5 - 82,5 (79,5 - 84,5)	1040-1050	LDA 800 LDA 500	0,7 bar 86,5 - 88,5 (84,0 - 91,0) 0 bar 61,5 - 63,5 (59,5 - 65,5)	100	115,0-125, (112,0-128, =18,2 - 18,4 mm F		-

Checking values in brackets

10.85

BOSCH

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^{* 1} mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

KHD 4,1 d 1

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure increasing

Punip/governor	Setting	Measurement	diminution Control rad travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 4 ARS 2638 +RSVA 2 C 707-2L	0,70	0 0,45 0,29	13,7 - 13,8 12,1 - 12,2 13,3 - 13,4 12,5 - 12,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

B9

WPP 001/4 KHD 1 g 19

1. Edition

PES 3 A 85 D 410/3 RS 2642

RSV 325-1250 A 2 C 2168-2 L

supersedes

Komb.-NR. 0 400 863 009

F 3 L 913

45,0 kW/2500 min⁻¹

tractor DX 3.50

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,45-2,65)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm 1/100 strokes	cm ³ / 100 strokes 4	mm 2	cm //100 strokes	mm 6
1250	10,9+0,1	7,1 - 7,2	0,3 (0,5)			
325	7,9-8,1	0,7 - 1,3	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	(' <i>)</i> ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '			Intermediate rated speed			Lower	3 Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- tever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min	Control rod travel mm
loose	800	0,3-0,7	-	_		ca. 22	325	7,5	1250	10,9-11,0
	X = 4.0						325	7,9 - 8,1	800	11,3-11,4
ca. 51	9,9 4,0 1520	1290-1300 1365-1395 0,3-1,4					480 -	540 = 2,0	1045	11,0-11,2

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop		6 Rotational- speed limital 3a Fuel delivery characteristics			Starting fuel delivery 5 4a Idle stop			
rev/min	emp 40°C (104°F) cm //1000 strokes 2	Note changed to) rev/min	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm½1000 strokes 7	rev/min	Control rod travel mm
1250	70,5 - 71,5 (68,5 - 73,5)	1290-1300*	800	62,5 - 64,5 (60,0 - 67,0)	-	-	-	-
				·	-			

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung.

§ 1980 by Robert Bosch GmbH, Postfach 50. D-7000 Stuffgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

40

WPP 001/4 DEE 7,6 b

4. Edition

En

PES 6 A 100 D 410 RS 3034

Komb.-Nr. 0 401 276 049

RSV 600-1100 A 2 B 2080 L

supersedes 10.83

company John Deere 6.466 AZ-01

engine 152 kW

Use overflow valve 1 413 385 007

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,95-2,05

mm (from BDC)

	11	90-2,10)				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm ¹ /100 strokes	cm ³ / 100 strokes	mm	cm 1/100 strokes	mm
1	2	3	4	2	3 -	6
1100	11,7+0,1	12,9-13,1	0,4			
600	4,5-4,7	1,3-1,7	0,4			
		*				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	/			mediate rated speed (4) Lower rated speed				rated speed	3 Torque control		
Degree of deflection of control lever	travel mm	Control rod travel mm rev/min				Control- lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-1,0	-	-	-	ca. 19	600	4,1	•	-	
								min. 19,0			
ca. 37	10,7 4,0 1250	1145-1155 1195-1225 0,3-1,7					600 6 3 5 - 6 95 800	4,5-4,7 = 2,0 max. 1,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat		uel delivery naracteristics	Starting (uel delivery 5	(4a) Idi	e stop
rest oil to	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to .) rev/min 3	rev/min 4	cm ¹ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm
LDA 1100	0,7 bar 129,0-131,0 (126,5-133,5)	1145-1155*	LDA 500	0 bar 68,5-71,5 (67,0-73,0)	100	= 19,0-	,0 - W	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. § 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

D. Adjustment Test for Manifold Pressure Compensator

DEE 7,6 b

- 2 -

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 ARS 3034	0,29		2,65-2,75
+RSVA 2 B 2080L		0,12	0,7-1,1

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel lajection Pumps (A) and Governors

WPP 001/4 KHD 12,6 b 1 2. Edition

PE 8 AM 80 D 310 RS 2004

RSV 200-1150 A 4 B

Komb.-Nr. 0 405 078 204

company F 8 L 714 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25

mm (from BDC)

	(2	,10-2,30/				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	cm ¹ / 100 strokes	ww	cm1/100 strokes	mm
1	2	3	4	2	3	6
1000	12,0	7,4 - 7,8	0,4			
200	9,0 15,0 9,0	3,9 - 4,7 10,3 -11,4 2,8 - 3,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm	rev/min Controt rod travel mm rev/min 3	Intermed	liate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm 9	I(3 /	rque control Control rod travel mm
ca.72	1150 1200 1230	16,0 9,0 4,5	witho sprin	ut aux g	ciliar	ca. 25 y	100	6,0 19,0-21,0	1	0
(28)	1180 1200 1250 1350	11,0-13,0 7,0-10,5 2,2- 4,5	spring		ary		200 300 400 550	5,7- 6,3 3,6- 5,0 0,4- 3,4 0- 1,0	400	0,7 - 0,9 1,1 - 1,3

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	III-load stop	6 Rotational- speed limital	(3a) Fu	el delivery paracteristics	Starting f	uel delivery 5	4a) Idle stop	
rev/min	emp 40°C (104°F) cm³/1000 strokes	Note. changed to) rev/min 3	rev/min	cm³/1000 strokes	rev/min	cm ¹ /1000 strokes	rev/min 8	Control rod travel mm
1150	72,0 - 73,0 (70,5 - 74,5)		800	75,0 - 77,0 (37,5 - 78,5)	-	-	-	-
			600	75,5 - 77,5 (74,0 - 79,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 KHD 12,6 b 2

1. Edition

En

PE 8 AM 80 D 310 RS 2004

RSV 200-1150 A 4 C 73 L

supersedes.

company KHD

F 8 L 714 A engine

Komb.-Nr. 0 405 078 204

131,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

estoil-ISO 4113

(2,10-2,30)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-con/rol valve)
rev/min	mm (2)	cm³/100 strokes	cm ¹ / 100 strokes	mm	cm 1/100 strokes	mm
1	2	3	4	2	3	6
1150	1,5+0,1	7,2-7,3	0,2(0,35)			
200	8,9-9,1	2,8-3,6	0,35(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	d rev/min	Interme	diate rated	speed	4	Lower	rated speed	3 Torque control		
Degree of deflection	Control rod travel	Control rod travel				Control- lever		Cuntrol rod travel		Control rod travel	
of control lever	mm	mm rev/min				deflection in degrees	rev/min	mm	rev/min	mm	
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-0,7	-	-	-	ca. 20	200	7,0	1150	11,5-11,6	
	x = 4	0	İ					min. 19,5		12,8-12,9	
ca. 67	4,0	1190-1200 1230-1260 0,3-1,4					200 435-49	7,4-7,6 5 = 2,0	800	11,9-12,1	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

9	ull-load stop	6 Rotational- speed limitat		uel delivery naracteristics	Starting fuel delivery 5 4a Idle stop				
rev/min	emp. 40°C (104°F) cm ³ /1000 strokes 2	Note. changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes	rev/min	cm ¹ /1000 strokes	rev/min	Control rod travel mm	
1150	72,0-73,0 (70,5-74,5)	1190-1200*	600	75,5-77,5 (74,0-79,0)	-	-	-	-	
			800	75,0-77,0 (73,0-79,0)					

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. < 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Eosch GmbH.

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 RVI 8,8p

1. Edition

PES 6 MW 100/320 RS 1025 RQ 750 MW 42 0 403 446 154

supersedes

companyRV I

engine: MIDR 06.02.12 100 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC)

PW 9-12 mm

or crosing at press		(2,30-3,10)			KW 9-12	URU
Rotational speed rev/min 1	Control rod ² travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14.5+0.1	13,35-13,55	0,35(0,6			
!						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider)	Full-load s	speed re	gulation		Idle speed regulation				Torque control		
PRG che	ck (1)	Setting po	oint :	Test spec	cifications (4)	Setting (point	Test spe	cifications (5)		((3)
:	Control rod		, i	Control rod travel	Control rod travel	<u> </u>		Control rod travel		Control rod travel		Control rod travel	
rev/min	mm	ļ	rev/min	mm	mm ·	rev/min	rev/min	mm	rev/min	mm	rev/min	mm	
1	2		3	4	5	6	7	8	9	10	11	12	
					13,5 4,0 0-1	750-755 795-805 825 VH 32 ± 3							

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d governor d Test oil ter	lelivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics	3 b	Starting f Idle spee	uel delivery d Cantrol
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		rev <i>im</i> in 6	rod travel cm ³ /1000 strokes:/mm 7
700	133,5-135,5 (131,5-137,5)					100	80,0-90,0 (77,0-93,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 KHD 12,7t4

En 1. Edition

SO 41 13

PE 8 MW 100/720 LS 1117 RQ 300/1150 MW 61 0 403 548 010

1-8-7-2-6-5-4-3 je 45°

supersedes

company: KHD

engine: F8L 413 FZ

180 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 3.10-3.20

Port closing at pre	stroke	(3.05-3.25) mm (from BDC) RW = 9,0 - 12,0 mm								
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (forque-contro! valve) mm				
650	13,1+0,	10,8-11,0	0,35(0,6)							
300 1150	8,5-8,6 11,7÷0,1	1,1-1,5	0,35(0,55 0,5(0,7))						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed		Intermediate	e rated so	eed	Lower rated	speed		Culdina		
Degree of deflection of control	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Sliding sleeve trave		
lever	mm	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm	
,	2	3	4	5	6	7	8	9	10	11	
max. 46	550 1350	19,2-20,8 0-1,0				ca.16	100 300	min.10 8,5-8,6			
ca.34	10,7	1200-1210 1275-1305									
						(3a)					

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil te		Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics 5a speed 5c	idle	fuel delivery 6	6 Torque-contr	
rev/min 1	in cm³/1000 strokes rev/min 2 3		rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	travel mm 9
650	108,0-110,0 (106,0-112,0		1150	98,0-100,0 (95,0-104,0)	100 300 100-	130,0-140,0 (127,0-143,0) 11,0-15,0 (8,5-17,5) 230 (80-250)	1150 850 650	12,4+0

Checking values in brackets

BOSCH

^{* 1} mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 KHD 13,4d2

1. Edition

En

(13

PE 8 MW 100/720 LS 1118 RO 300/1150 MW 63-1 0 403 548 012 1-8-7-2-6-5-4-3 je 45°

supersedes -

company: BF 8 L 513 engine

225 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.05-3.25)

mm (from BDC)

RW = 9.0 - 12.0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strekes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
650	13,2+0,1	14,3-14,5	0,35(0,6)			
300	7,0-7,1	1,8-2,2	0,35(0,55)		
1150	12,1+0,1		0,5 (0,7)			
450	12,0+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	ng of slider eck 1	Full-load	•	•	cifications (4)	Idle spec	•		cifications (5)	Torque (
rev/min 1	Control rod travel	rev/min 3	Control rod travel mm	Control control control travel mm	rev/min	rev/min 7	Control rod travel		Control rod travel mm	rev/min 11	Control rod (3)
650	19,2-20,8 VH 46°	650	20,0	11,1 4,0 0-1	1190-1200 1255-1285 1340			100 300	min. 8,5 7,0-7,1 330-400	1150	13,2-13,3 12,1-12,2 12,9-13,1
			40				_				

Torque control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting f	uel delivery
rev/min	cm³/-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes	rev/min 6	cm ³ /1000 strokes / mm 7
LDA 650	0,9 bar 143,0-145,0 (141,0-147,0)		LDA 1150 LDA 450	0,9 bar 134,0-136,0 (132,0-138,0) 0 bar 111,0-113,0 (109,0-115,0)	100 300	140,0-150,0 (137,0-153,0) 18,0-22,0 (16,0-24,0)

Checking values in brackets

:

D. Adjustment Test for Manifold Pressure Compensator

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure =	bar Gauge pressure = ba	mm (1)
RS 1118 mit MW 63-1	0,9	0 0,31 0,42	13,2-13,3 12,0-12,1 12,2-12,3 12,8-12,9

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Note: Test elec. unlocked starting fuel delivery (EES) with 24 Volts.

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 KHD 13,4d3

1. Edition

Testoil-ISO 4113

PE 8 MW 100/720 LS 1128 RQ 300/1150 MW 63 0 403 548 011

1-8-7-2-6-5-4-3 je 45°

supersedes company: KHD

BF 8 L 513 225 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,05-3,25) mm (from BDC) RW = 9-12 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700 300 1150 450	13,0+0,1 6,5-6,6 12,5+0,1 11,5+0,1	14,1-14,3 1,3-1,7	0,35(0,6 0,35(0,5 0,5 (0,7	5)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ck Control rod	Full-load s Setting po	•	•	cifications (4)	Idle spec	ooint Control		cifications 5	Torque o	Control rod
rev/min 1	travel mm 2	rev/min 3	rod travel mm 4	rod travel mm 5	rev/min 6	rev/min 7	rod travel mm 8	rev/min 9	travel mm 10	rev/min 11	travel mm 12
600	19,2-20,8	600	20,0	11,5 4,0 0-1				300 100	min.8,1 1	150	13,0-13,1 12,5-12,6 12,7-12,9

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever emp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	<u>3</u> b	Starting f	ruel delivery d I Control
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes 5		rev/min 6	rod travel cm ³ /1000 strokes / mm 7
LDA 700	0,99 bar 141,0-143,0 (139,0-145,0)	,	LDA 450	0,99 bar 136,0-140,0 135,0-141,0) o bar 107,0-109,0 105,0-111,0)			135,0-155,0 (132,0-158,0) 13,0-17,0 11,0-19,0)

Checking values in brackets

.11.85

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement Gauge pressure = bar	diminution Control rod travet- difference mm (1)
LS 1128 mit MW 63	Gauge pressure = bar	0 0,30 0,40	13,0-13,1 11,5-11,6 11,8-11,9 12,6-12,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

En

Test Specifications Fuel injection Pumps (2) and Governors

WPP 001/4 KHD 13.4d4

1. Edition

PE 8 MW 100/720 LS 1128 RQ 300/1150 MW 63-2 0 403 548 014 1-8-7-2-6-5-4-3 je 45°

supersedes company: KHD BF 8L 513 235 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,10-3,20 Port closing at prestroke mm (from BDC) RW = 9-12 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control red travet mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150 300 700 400	12,6+0,1 6,5-6,6 13,6+0,1 11,3-11,	1,3-1,7	0,35(0,6 0,35(0,5 0,5 (0,7	5)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ck 1	Full-load : Setting po	•	•	cifications (4)	Idle spe			cifications (5)	Torque (control 3
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm	Control rod travel mm 5	rev/min	rev/min	Control rod travel rmm		Control rod travel mm	rev/min	Control rod travel mm
600	19,2-20,8	600	20,0	11,6 4,0 0-1				100 1	5,5-6,6 nin.8,1 330-400	700 950	12,6-12,7 13,6-13,7 13,0-13,2 12,6-12,7

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

	relivery on control lever np. 40°C (104°F)	Control rod stop (3a)	Fuel deliv	ery characteristics	Starting t	
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm³/-1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes / mm
LDA 1150	0,9 bar 141,0-143,0 (139,0-145,0)		LDA 700	0,9 bar 153,0-155,0 (151,0-157,0)	100	135,0-155,0 (132,0-158,0)
			450	0 bar 107,0-109,0 (105,0-111,0)	300	13,0-17,0 (11,0-19,0)

Checking values in brackets

Testain =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure =	bar Gauge pressure =	bar mm (1)
LS 1128 mit MW 63-2	0,48		13,0-13,1
		0,33 0 0,90	12,2-12,5 11,3-11,4 13,6-13,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 DAF 11,6 i 9

2. Edition

PE 6 P 120 A 320 RS 372-1 Komb.-Nr. 0 401 846 464

RQ 250/1100 PA 417 R

supersedes 5.84

company DAF

DKS 1160 235 kW

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 600 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
850	10,9+0,1	17,2-17,4	0,5(0,9)			
250	6,2-6,4	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che	g of slider ck (1)						Idle speed regulation Setting point Test specifications (5)				Torque control		
rev/min 1	Control rod travel mm 2	rev/min 3	rod travel mm	Control rod travel rnm 5	rev/min	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm	rev/min	Control rod travel mm		
700	15,6-16,4	700	16,0	9,9 4,0 1350	1145-1160 1210-1240 0-1,0	1	6,3	100 250 445-	min.7,4 6,2-6,4 485 = 2,0		10,9-11,0 10,8-11,0		
	ontrol travel ght assembly dimen	sion a =	0	mm	Spe	ed regula	1 ation: At	145-1	160 min ⁻¹		1 mm less contro rod trave		

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting fuel delivery		
rev/min	cm³/-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Control rod travel cm ³ /1000 strokes / mm	
LDA 850	0,7 bar 172,0-174,0 (169,0-177,0)	-	LDA 600	0 bar 130,0-132,0 (127,0-135,0)	100	300,0-340,0 (296,0-344,0) = 19,5-21,0 mm RW	

Checking values in brackets

11.85

BOSCH

Test at n = rev/min decreasing pressure - in bar gauge pressure 600

DAF 11,6 i 9

-2-

000			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 PRS 372-1 + RQPA 417 R	0,70	0 0,30 0,26	10,9-11,0 9,8-9,9 10,6-10,7 10,0-10,4

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 VOL 12,0 a

7. Edition

En

PE 6 P 110 A 320 RS 141 RQV 200-1100 PA 103/2R supersedes 7.83

RS141,Z,Y 250-1100 PA 234/2R company Volvo engine TD 120

** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke(2.55-2.75)	nim (from BDC	')		
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1000	12	17,9 - 18,7	0,6			2,5 [±] 0,1 **
600	6	3,2 - 4,2				(max.2,2-2,9)
	12	17,3 - 18,8	1	ļ		
	15	23,5 - 25,3				
200	6	1,1 - 2,1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV .. 193/2R mit 141

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Sliding st	eeve travel
Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		ontrol travel
lever	rev/min	mm	lever	rev/min	mm	lever	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1150 1410					ca.23	100 200	7,0-10,0 5,0-8,4	200 500	1,5-2,3 3,6-4,0
ca. 66	1200						300 400	2,4-5,2 0 -2,2	1150	8,3
	1260 1400	2,0-9,0					460	0	-	-

Torque control travel a =

mm

Caution: abnorm. sldg-sleeve pos'n = 36,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel deli	Fuel delivery characteristics		fuel delivery ng point I	Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min mm	
1	2	3	4	5	6	7	8	<u> </u>
LDA 700	0,7 bar 181,0-183,0	1150	LDA 700	0 bar 124,0-127,0	100 200	390 - 410 17 - 21 **		
	Ì				dispe	rsion max. 2	5	
(inre	ase by \pm 1,0 α	m ³ !)						,

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung ← 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

B. Governor Settings

Upper rated s	peed		Intermediate	rated spe	eed	Lower rated	speed		Slidina sl	leeve travel
Degree of deflection	rev/min Control	Control rod (ta)	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		0
of control lever	rodtravel mm		of control lever	rev/min	mm 4	of control lever	rev/min	mm 3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.50	1170 1400 1100	15,0-18,3 0 15,0-17,8				ca. 13	100 200 300	9,0-11,0 7,2-9,9 4,0-6,9		1,4-2,0 3,7-4,0 8,3
	1200 1280 1360	6,4-12,0 0 -6,2 0				(3a)	400 490	0 -2, 8 -	-	-

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten		Rotational-speed (2b) timitation intermediate speed	very characteristics (5a) speed (5b)	Starting Idle switchir		Torque- travel	Control rod	
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm³/1000 strokes	rev/min	cm ^{-/} /1000 strokes	rev/min 8	travel mm 9
LDA 700	0,9 bar 181,0-183,0 (178,0-186,0)	1160-1170*	LDA 700	0 bar 124,0-127,0 121,0-130,0	250	340,0-360,0 11 - 15 rsion max. 2		

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

RQV .. 234/2R mit 141Z

Upper rated s	speed		Intermediate	rated spe	ed	Lower rated	speed		Slidina s	leeve travel
Degree of deflection		Control rod (1a)	Degree of deflection	ţ	Control rod travel	Degree of deflection	į	Control rod travel		1
of control lever	rod travel	mm rev/min (2a)	of controi tever	rev/min	mm (4)	of control lever	rev/min	mm 3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1170 1400 1100	15,0-18,3 0 15,0-17,8	,			ca.13	100 200 300	9,0-11,0 7,2-9,9 4,0-6,9	350 650 1170	1,4-2,0 3,7-4,0 8,3
	1200 1280 1360	6,4-12,0 0 -6,2 0				(3a)	400 490	0 -2,8	-	-

Torque control travel a = ____

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten		intermediate speed	Fuel deliv	very characteristics 5a speed 5b	Starting Idle switchir	fuel delivery 6 ng point	Torque- travei	Control roo
rev/min	cm ³ /1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min		rev/min	travel
1	2	3	4	5	6	7	В	9
LDA 700	0,9 bar 205,0-207,0	1160-1170*	LDA 700	0 bar 124,0-127,0	100 250 disp	390 - 410 11 - 15 ersion max. 2	** ,5	

B. Governor Settings

RQV ., 234/2R with 141Y

Upper rated	speed	1	Intermediate	rated spe	ed	Lower rated	speed	•	Slidings	leeve travel
Degree of deflection of control lever	rev/min Control rod trave! mm 2	Control rod travel mm rev/min (2a)	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm
ca.50	1170 1400 1100 1200	15,0-18,3 0 15,0-17,8 6,4-12,0				ca.13	100 200 300 400	9,0-11,0 7,2-9,9 4,0-6,9 0 -2,8	350 650 1170	3,7-4,0
	1280 1360	0 -6,2				(3a)	490	0	ı	-

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed (2b) limitation intermediate speed	Fuel delivente characte high idle :	ristics	Starting Idle switchin	fuet delivery 6	Torque- travel	control (5)
rev/min 1	cm³/1000 strokes	rev/min (4a)	rev/min	cm³/1000 strokes	rev/min	cm 1/1000 strokes	rev/min	travel mm 9
LDA 700	0,7 bar 161,0-163,0	1160-1170	LDA 700	0 bar 116,0-119,0	100 250 dispe	390 - 410 11 - 15 rsion max. 2	.5	

Checking values in brackets

* 1 mm less control rod travei than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm
141 with 103/2R	0,48-0,50	0,12-0,22	
141 with 234/2R	0 , 90	0 0,51 0,31	11,3 - 11,4 8,8 - 8,9 10,7 - 10,8 9,3 - 9,5
141Z with 234/2R	0,62-0,66	0,14-0,27	
141Y with 234/2R	0,49-0,52	0,14-0,30	

En

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 MB 10,0 a 2. Edition

En

PE 5 P 100 A 720 RS 265 Komb.-Nr. 9 400 087 269 1-2-4-5-3 je 72° <u>+</u> 0,5° (<u>+</u> 0,75°)

RSV 350-1000 P1/14

supersedes 7.85 Daimler-Benz company. OM 355-5 engine

All test specifications are valid for Bosch Fuel Injection Fump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,8-2,9 (2,75-2,95)

mm (from BDC) RW = 9.0 - 12.0 mm

Retational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control kalve)
rev/min	mm 2	cm ³ /100 strokes 3	cm ^{-//} 100 strokes 4	mm 2	cm//100 strokes	mm 6
1000	12,9+0,1	11,4 - 11,6	0,35 (0,6)			
350	7,4-7,6	1,5 - 1,9	0,3 (0,5)			
					. [

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Uppe	r rated speed	rev/min	intermad	liale rated	speed	(4)	Lower	rated speed	11 Y /	rque control
Degree of	Control rod travel	Control rod	:		1	Control-		Control rod		Control rod trayel
deflection of control	mm	mm rev/min	;			leyer deflection	rey/min	mm	teA/wiii	mni
lever	2	3	4	5	6	in degrees	8	9	10	11
loose	800	0,3-1,0	-	=	=	ca, 24	350	7,0	-	-
	Χ :	=					100	min. 19,	b	
ca. 53		1040-1050					350	7,4-7,6		
(2a)	4,0 1200	1095-1125 0,3-1,7					520 - 5	80 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp 40°C (104°F)	Note	③ Fu	uel delivery naracteristics	Starting (uel delivery 5	(4a) lidle stop		
rev/min	cm ³ /1000 strokes	changed to) rev/min	rev/min 4	cm ³ /1000 strokes 5	rev/min 6 .	cm ³ /1000 strokes 7	rev/min 8	travel mm 9	
1000	114,0-116,0 (112,0-118,0)	1040-1050*		103,0 -106,0 100,5 -108,5		150,0-170, = 18,1-18, mm RW		-	

Checking values in brackets

* 1 mm less control rod travel than col 2

2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 DAF 11,6 i 8 5. Edition

En

PE 6 P 110 A 320 RS 372-1

RQ 250/1100 PA 417-1

supersedes 6.85

Komb.-Nr. 0 401 846 463

RQ 250/1100 PA 417

company: DAH DKTD 1160

191 kW (260 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	(2.75-2.95)	mm (from BDC)	mm (from BDC)						
Rotational speed	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)				
1	2	3	4	2	3	6				
850	12,0+0,	1 13,7-13,9	0,4(0,75							
250	6,6-6,	8 0,7-1,1	0,45(0,75)						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RG check (1)	Setting poi		gulation Test spec	cifications (4)	Idle spec	•		cifications (5)	Torque o	control 3
Control rod travel mm 2	1	Control rod travel mm 4	Control rod travel rnm 5	rev/min		Control rod travel	·	Control rod	rev/min	Control rod travel mm 12
700 15,6-16,4	700	16,0		1145-1160 1220-1250 0 - 1,0	250	6,7	250	min. 7,8 6,6-6,8 00 = 2,0	850 1100	12,0-12,1 11,9-12,1

on flyweight assembly dimension a =

0 mm

1145-1160 min Speed regulation: At

mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control tever mp. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics	Starting (. —
rev/min	cm³/~1000 strokes 2	rey/min 3	rev/min	cm³/-1000 strokes 5	rev/min 6	Control red travel cm ³ /1000 strokes:/ mm
LDA 850	0,7 bar 137,0-139,0 (134,5-141,5)	-	LDA 600	0 bar 128,0-130, 0 (125,5-132, 5)	100	245,0-285,0 (241,0-289,0) = 19,5-21,0 mm RW

Checking values in brackets

11.85

BOSCH

Test at n =

600

rev/min decreasing pressure - in bar gauge pressure

DAF 11,6 i 8 - 2

000			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS372-1 +PA417-1 oderPA 417	0,70	0 0,30 0,28	12,0-12,1 11,5-11,6 11,8-11,9 11,5-11,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 11,6 k 16 1. Edition

PE 6 P 120 A 320 RS 372-1

RSV 250-1100 P 5 A 508-2

supersedes=

Komb.-Nr. 0 401 876 310

company DAF

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

DKS 1160 235,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,75-2,95)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ^{1/100} strokes 3	Difference cm ¹ / 100 strokes 4	Control rod travel mm	Fuel delivery cm //100 strokes 3	Spring pre-tensioning (torque-control valve) mm
850	10,9+0,1	17,2-17,4	0,5 (0,9)			
250	6,6-6,8	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection	Control rod travel	d rev/min Control rod travel	Intermediate rated speed			Control- lever	Lower	Lower rated speed Control rod travel		rque control Control rod travel
of control lever 1	mm 2	mm rev/min 3	4	5	6	deflection in degrees 7	rev/min 8	mm 9	fev/min	11
loose	800	0,3-0,7	-	-	-	ca. 24	250	5,8	850	11,1-11,2
	X = 5	,0					250	6,2-6,4	400	11,1-11,3
ca. 54	4,0	1140-1150 1260-1290 0,3-1,4					620-68	30= 2,0	300	11,4-11,9

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Ft	ull-load stop	6 Rotational- speed limitat		let delivery paracteristics	Starting fuel delivery 5 4a Idle stop			
Test oil temp 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes	rev/min 8	Control rod travel mm 9
LDA 850	0,7 bar 172,0-174,0 (169,0-177,0)	1140-1150*	LDA 600	0 bar 130-132,0 (127,0-135,0)	100	300,0-340 (296,0-344		-

Checking values in brackets

* 1 mm less control rod travel than col 2



DAF 11,6 K 16 - 2 -

Test at n =

600 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6P RS 372-1 + RSVP5A508-2	0,7	0 0,36 0,28	10,9-11,0 9,8-9,9 10,6-10,7 10,0-10,4

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 MAN 11,1 q 29

1. Edition

ROV 250-1100 PA 504 PES 6 P 120 A 720 LS 388 Komb.-Nr. 0 402 046 204 = MAN-Nr. 2-7113 $0\ 402\ 046\ 295 = MAN-Nr.\ 2-7111$

supersedes MAN company D 2566 MKF

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

engine: 206 kW/2200 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel injection Pump Settings

Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
11,4+0,1	17,8-18,0	0,5(0,9)			
6,2-6,4	1,2-1,8	0,8(1,2)			
	mm 2 11,4+0,1	mm cm ³ /100 strokes 2 3 11,4+0,1 17,8-18,0	travel mm cm³/100 strokes 2 3 11,4+0,1 17,8-18,0 0,5(0,9)	travel cm³/100 strokes cm³/ 100 strokes mm 2 11,4+0,1 17,8-18,0 0,5(0,9)	travel cm³/100 strokes cm³/ 100 strokes mm cm³/100 strokes 2 3 11,4+0,1 17,8-18,0 0,5(0,9)

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed	Lower rated	speed		Slidings	leeve travel
deflection of control	rev/min Control rod travel		(1a) (28)	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Ţ	
lever 1	mm 2	rev/min 3	(28)	lever 4	rev/min 5	mm (4)	lever 7	rev/min 8	mm (3) 9	rev/min 10	mm 11
max.	1500	15,2-17	,8	-	-	-	ca.12		min.7,8 6,2-6,4	300 800	1,8-2,1
ca. 66	,	1140-11 1210-12						250	JU,2-0,4	1100	5,3-5,6 7,9
	1400	0-1,					365-480				<u>.</u>
· · · · · · · · · · · · · · · · · · ·							(3a)	i			

Torque control travel a = 1,2

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Controi-ro Test oil ter		Rotational-speed (2b) limitation intermediate speed	Fuel deliv	Fuel delivery characteristics (5a) Starting fuel high idle speed (5b) Starting positions (5b)				control 5
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev#min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA	0.7 bar	1140-1150*	LDA	0,7 bar	100	205,0-225,0	750	11.4+0
750	178,0-180,0		650	171,0-177,0		(201,0-229,0		
	(175,0-183,0)			(168,0-180,0				11,0+0
LDA	0,7 bar		LDA	0.31 bar	250	12,0-18,0		10,3+0
1100	160,0-166,0		500	131,0-137,0		(9,0-21,0)		•
	(157, 0-169, 0)			(128,0-140,0				
			LDA	0 bar				
	<u> </u>		500	_104.0-106.0				

Checking values in brackets

(101,0-109,0)

* 1 mm less control rod travel than col. 2

MAN 11,1 q 29

-2-

Testatn =

500

rev/min decreasing pressure – in bar gauge pressure increasing

Pump/governot	Selting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 PLS 388 +RQVPA 504	0,70	0 0,31 0,43	11,4-11,5 9,2-9,3 10,3-10,4 10,9-11,1
	·		·

Notes

(1) when n =

rev/min and gauge pressure =

bar (≈ maximum full-load control rod travel)

C10

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MAN 11,1 q 28

2. Edition

PES 6 P 120 A 720 LS 388 Komb.-Nr. 0 402 046 266

RQ 250/1050 PA 658-8

supersede 7.84 company MAN

Values only apply to test nozzle-and-holder assembly

D 2566 MK 279 206 kW/2100 min⁻¹

1 688 901 019 and fuel-injection test tubing 1 680 750 067

MAN-Nr. 2-7238

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.95-3.15)

mm (from BDC) Cyl. 6

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	100 strokes	mm	cm ^{-/} 100 strokes	mm 6
750	11,8+0,1	18,7-18,9	0,5(0,9)			
250	6,3-6,5	1,1-1,7	0,8(1,2)			
						·
			}			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	~	Full-load s	•	•	cifications (4)	Idle spec	•		cifications (5)	Torque d	control 3
rev/min	Control rod travel mm 2	rev/min 3	Control rod travel rn.m 4	Control rod travel rnm 5	rev/min 6	rev/min 7	Control rod travel m.m 8	rev/min 9	Control rod travel mm 10	rev/min	Control rod (travel
600 VH =	19,2-20,8 max. 46°	600	20,0		1095-1110 1175-1205 0-1,0	250	6,4	100 250 340-	min.7,9 6,3-6,5 380 = 2,0	1050 870	11,8-11,9 10,7-10,8 11,6-11,8 10,9-11,2

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever [2]		Control rod stop 3a	Fuel deliv	ery characteristics	Starting f	
ĺ	cm ³ /-1000 strokes	rev/min 3	rev/min	cm³/-1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes:/ mm
LDA 750 LDA 1050	1,0 bar 187,0-189,0 (184,0-192,0) 1,0 bar 167,0-173,0 (164,0-176,0)	-	LDA 650 LDA 500	1,0 bar 178,0-184,0 (175,0-187,0) 0 bar 113,0-115,0 (110,0-118,0)	100 250	205,0-225,0 (201,0-229,0) 6,3-6,5 mm RW

Checking values in brackets

11.85

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MAN 11,1 q 28

- 2 -

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure increasing

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure =	bar Gauge pressure = bar	
PES6PLS388 + RQPA658-8	1,0	0 0,31 0,44	11,8-11,9 9,5-9,6 10,5-10,6 11,2-11,6

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

612

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MAN 11,1 w

1. Edition

PES 6 P 120 A 720 LS 388

RQ 300/1100 PA 658-13

Komb.-Nr. 0 402 046 319

supersedes MAN

D 2566 MLUM/US

227,0 kW MAN-Nr. 2-7697

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,0-3,10 (2.95-3.15)

mm (from BDC) Cyl. 6

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm ³ /100 strokes	mm 6
750	11,6+0,1	18,1-18,3	0,5(0,9)			
300	6,4-6,6	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ock	Full-load : Setting po	•	-	cifications (4)	Idle spe			cifications (5)	Torque	control (3)
rev/min	Control rod travel mm 2	rev/min 3	Control rod travel rnm 4	Control red travel mm 5	rev/min	rev/min 7	Control rod travel rmm 8	rev/min 9	Control rod travel	rev/min 11	Control rod travel
600 VH	19,2-20,8 = max. 46°	600	20,0	10,4 4,0 1400			6,5	300	min. 8,0 6,4-6,6 10= 2,0	1100 850	12,0-12,1 11,4-11,5 11,7-11,9 11,4-11,5
Torque-c	ontrol travel		0,2	0							1 mm less contro

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop 3a	Fuel deliv	ery characteristics	Starting (luel delivery
rev/min	cm³/-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes:/ mm
LDA 750 LDA 1100	1,0 bar 181,0-183,0 (178,0-186,0) 1,0 bar 180,0-184,0 (177,0-187,0)	-	LDA 650 LDA 500 LDA 500	1,0 bar 174,0-180,0 (171,0-183,0) 0,35 bar 140,0-150,0 (137,0-153,0) 0 bar 111,0-113,0 (108,0-116,0)	100 300	225,0-245,0 (221,0-249,0) 12,0-18,0 (9,0-21,0)

Checking values in brackets

10.85

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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Test at n = rev/min decreasing pressure - in bar gauge pressure

MAN 11,1 w

. 2 .

500			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 PLS 388 + RQPA 658-13	1,0	0 0,22 0,48	11,6-11,7 9,4-9,5 9,7-9,8 11,0-11,3

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

C14

`E_

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MAN 11,1 w 1

1. Edition

PES 5 P 120 A 720 LS 388

RO 300/1100 PA 658-14

Komb.-Nr. 0 402 046 320

supersedes MAN D 2566 MLUM/CA

engine:

227,0 kW

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

MAN-Nr. 2-7698

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,95-3,15)

mm (from BDC) Cy1. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,4+0,1	18,8-19,0	0,5(0,9)			
300	7,0-7,2	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider	Full-load :		-	cifications (4	Idle spe	ed regula		citications (5)	Torque	control (3)
rev/min	Control rod travel mm 2	rev/min 3	Control rod travel mun 4	Control rod travel mm 5	rev/min 6	rev/min	Control rod travel	rev/min 9	Control rod travel	rev/min	Control rod travel mm
600	19,2-20,8	600	20,0		1145-1160 1185-1215		7,1	100 300	min.8,6 7,0-7,2		12,7-12,8 12,1-12,2
VH	= max. 46°			1400				i	20= 2,0 -	850	12,5-12,7 12,1-12,4
			0.20								

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop (3a)	Fuel deliv	ery characteristics	Starting f	
rev/min 1	cm ³ /-1000 strokes	rev/min 3	rev/min	cm³/-1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes:/ mm
LDA 750 LDA	1,0 bar 188,0-190,0 (185,0-193,0) 1,0 bar	-	LDA 650 LDA	1,0 bar 183,0-189,0 (180,0-192,0) 0,35 bar	100 300	225,0-245,0 (221,0-249,0) 12,0-18,0 (9,0-21,0)
1100	190,0-194,0 (187,0-197,0)		500 LDA	140,0-150,0 (137,0-153,0) 0 bar		
- · · · · · · · · · · · · · · · · · · ·			500	110,0-112,0 (107,0-115,0)		

Checking values in brackets

Test at n =

rev/min decreasing pressure – in bar gauge pressure increasing ${\bf p}$

MAN 11,1 w 1

500 diminution Setting Measurement Pump/governor Control rod travel difference Gauge pressure = (1) Gauge pressure = bar mm 12,4-12,5 9,7-9,8 PES 6 P..LS 388 1,0 + RQ..PA 658-14 0,25 0,58 10,0-10,1 11,5-11,8

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (2) and Governors

WPP 001/4 MAN 11,1 w 2

1. Edition

PES 6 P 120 A 720 LS 388

RQ 300/1100 PA 658-15

Komb.-Nr. 0 402 046 318

supernedes MAN

commanyD 2566 MLUH/CA

engine 192,0 kW

MAN-Nr. 2-7700

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings Port closing at prestroke Cy1. 6 mm (from BDC) (2.95-3.15)

Rotational speed	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
750 300	11.1+0.1 6,4-6,6		0,5(0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider	Full-load:	speed re	gulation	_	Idle spec	ed regula	ation		Torque control	
PRG che	eck (1)	Setting po	oint	Test spe	cifications (4)	Setting	point	Test spe	cifications (5)		(3
rev/min	Control rod travel	rev/min	Control rod travel	Control rod travel rmm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod Control
1	2	3	4	5	6	7	8	9	10	11	12
6·00 VH :	19,2-20,8 = max. 46°	600	20,0		1145-1160 1180-1210 0-1,0		6,5	300	min.8,0 6,4-8,6 10= 2,0	750 1100 850 920	11,2-11.3 10,7-10,8 11,0-11,2 10,7-11,0
oroue-ce	ontrol travel		0,20		L	L					1 mm less contr

Torque-control travel on flyweight assembly dimension a =

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever [2] Fest oil temp. 40°C (104°F)		Control rod stop 3a	Fuel deliv	ery characteristics	Starting fuel delivery Idle speed		
rev/min 1	cm³/-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes / mm	
LDA	1,0 bar	•	LDA	1,0 bar	100	225,6-245,0	
750	153,0-155,0		650	147,0-153,0		(221,0-249,0)	
	(150,0-158,0)	•	}	(144,0-156,0)	300	12,0-18,0	
LDA	1,0 bar		LDA	0,35 bar		(9,0-21,0)	
1100	162,0-166,0		500	131,0-141,0			
	(159,0-169,0)		ļ	(128,0-144,0)			
			LDA	0 bar			
			500	111,0-113,0			
				(108,0-116,0)			

Checking values in brackets

10.85

BOSCH

MAN 11,1 w 2

- 2 -

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure increasing

Pump/governor	Setting	Measurement	diminution Control rod travel- difference			
	Gauge pressure = bar	Gauge pressure = bar	mm (१) .			
PES 6 PLS 388 + RQPA 658-15	1,0	0 0,22 0,35	11,1-11,2 9,7-9,8 10,0-10,1 10,6-10,9			

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-toad control rod travel)

C COR طدعه

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Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MAN 11,1 w 3

1. Edition

PES 6 P 120 A 720 LS 388

RQ 300/1100 PA 658-16

supersedes MAN

Komb.-Nr. 0 402 046 321

company D 2566 MLUH/US engine: 177,0 kW

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

MAN-Nr. 2-7720

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,10 (2,95-3,15) Port closing at prestroke mm (from BDC) Cy], 6

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm³/ 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
750	10,6+0,1	14,5-14,7	0,5(0,9)			
300	6,3-6,5	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider	Full-load : Setting po	•	•	cifications (4)	1 '	ed regula	-	cifications (5)	Torque	control (3)
rev/min	Control rod travel mm 2	rev/min 3	Control rod travel rmm 4	Control rod travel rnm 5	rev/min 6	rev/min 7	Control rod travel		Control rod travel	rev/min	Control rod (travel)
600	19,2-20,8	600	20,0		1145-1160 1175-1205	300	6,4		min.7,9		10,7-10,8
VH =	max. 46°		,	1350	0-1,0				6,3-6,5 10= 2,0 -	1100 870 950	9,7-9,8 10,5-10,7 9,9-10,2
			0.45								

Torque control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting fuel delivery Idle speed		
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes/mm 7	
LDA 750	1,0 bar 145,0-147,0	-	LDA 650	1,0 bar 141,0-147,0	100	225,0-245,0 (221,0-249,0)	
LDA	(142,0-150,0) 1,0 bar		LDA	(138,0-150,0) 0,35 bar	300	12,0-18,0 (9,0-21,0)	
1100	141,0-145,0 (138,0-148,0)		500	130,0-140,0 (127,0-143,0)		(*,) = -, ,	
			LDA 500	0 bar 111,0-113,0			
			300	(108,0-116,0)			

Checking values in brackets

MAN 11,1 w 3

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 PLS 388 + RQPA 658-16	1,0	0 0,25 0,32	10,6-10,7 9,6-9,7 9,9-10,0 10,2-10,5

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

C20

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MAN 11,1 q 13

2. Edition

PES 6 P 120 A 720 LS 388

RQV 250-1100 PA 671

Komb.-Nr. 0 402 046 274, 0 402 046 275

company D 2566 NK(F) engine 206 kW/2200 min⁻¹

95.01.180 4113

िक्षा specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	3,0-3,1 (2.95-3.15)	mm (from BDC)	Cy1. 6	5	
Rotational speed rev/min t	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
750	11,4+0,	1 17,8-18,0	0,5(0,9)			
250	6,2-6,	4 1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm (2a)	of control	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min	Control rod travel mm 3	rev/min	mm	
max.	1130	15,2-17,8	-	-	-	ca. 12		min.7,8		1,7-2,0	
ca. 63	9,2 4,0	1140-1150 1205-1235					250	l6,2-6,4	850 1100	6,0-6,2 8,3	
	1350	0-1,0				395 - 520 3a)					

Torque control travel a = 1, 2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		limitation intermediate speed	(30)		Starting Idle switchin	,	Torque travel	Control od
rav/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm .
1	2	3	4	5	6	7	8	9
LDA 750 LDA 1100	0,7 bar 178,0-180,0 (175,0-183,0) 0,7 bar 160,0-166,0 (157,0-169,0)		LDA 500 LDA 500	0,31 bar 131,0-137,0 (128,0-140,0 0 bar 104,0-106,0 (101,0-109,0		2 0 5,0-2 2 5,0 (2 01 ,0-2 2 9,0	1100 860	11,4+0, 10,2+0, 11,0+0, 10,4+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

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MAN 11,1 q 13

Test at n =

500

rev/min decreasing pressure ~ in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	diminution Control rod travel- difference mm (1)
PES 6 PLS 388 + RQVPA 671	0,70	0 0,31 0,43	11,4-11,5 9,2-9,3 10,3-10,4 10,9-11,1

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 MAN 11,1 q 14

2. Edition

PES 6 P 120 A 720 LS 388

ROV 250-1100 PA 671-1

supersed 3.83 company MAN

Komb.-Nr. 0 402 046 277

Values only apply to test nozzle-and-holder assembly 1 588 901 019 and fuel-injection test tubing 1 680 750 067

engine D 2566 MK 235 kW/2200 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	(2,95-3,15)	mm (from BDC)	Cyl. 6	RW = 9,0-12	,0 mm
Rotational speed ray/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Oifference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,1+0,	1 21,8-22,0	0,5(0,9)			
250	6,3-6,	5 1,1-1,7	0,8(1,2)			
	,					
			1]	!

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
deflection	rev/min Control rod travel mm 2	Control rod travel mm cev/min 2a	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min	Control rod travel mm 3	rev/min	1	
max.	1130	15,2-17,8	-	-	-	ca. 12	100	min.7,9	300	1,7-2,0	
ca. 64	10,3 4,0	1140-1150 1220-1250					250	6,3-6,5	850 1100	8,3	
	1350	0-1,0				\$9 5- 520					
						(3a)					

Torque control travel a = 1,8

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten		Rotational-speed 2b timitation intermediate speed	Fuel deliv	very characteristics 5a	Starting Idle switchir	fuel delivery 6	Torque- travel	Control roa
rev/min	cm³/1000 strokes	rev/min 44	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
	2	3	4	5	6	7	8	9
LDA 750 LDA 1100	1,0 bar 218,0-220,0 (215,0-223,0) 1,0 bar 180,0-186,0 (177,0-189,0	1140-1150*	LDA 500 LDA 500	0,34 bar 144,0-150,0 (141,0-153,0 0 bar 102,0-104,0 (99,0-107,0)	205,0-225,0 (201,0-229,0	1100 860	13,1+0, 11,3+0, 12,6+0, 11,7+0,

Checking values in brackets

* 1 mm less control rod travel than col 2

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-2-

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 14

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 PLS 388 +RQVPA 671-1	1,0	0 0,34 0,61	13,1-13,2 9,4-9,5 10,9-11,0 12,5-12,9
		·	

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MAN 11,1 q 15

2. Edition

PES 6 P 120 A 720 LS 388

RQV 250-1050 PA 671-2

supersedes 7.83

Komb.-Nr. 0 402 046 278

company: MAN D 2566 MK/319 engine:

Values only apply to test nozzle-and-holder assembly

235 kW/2100 min⁻¹

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,10 (2,95-3,15) Port closing at prestroke

mm (from BDC)

Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,1+0,	21,8-22,0	0,5(0,9)			
250	6,3-6,	1,1-1,7	0,8(1,2)			
						·

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated: Degree of deflection of control lever	rev/min Control rod travel mm	Control rod (1a) travel mm rev/min (2a)	Intermediate Degree of deflection of control lever	rated sp revimin 5	Control rod travel mm 4	Lower rated Degree of deflection of control lever 7		Control rod travel mm 3	Sliding s	mm
max. ca. 62	11 3 0 10,3 4,0 1300	15,2-17,8 1090-1100 1180-1210 0-1,0	-	•	-	ca. 12 395 - 520	250	min.7,9 6,3-6,5	~~~	1,7-2,0 6,0-6,2 7,7

Torque control travel a = 1.8

C. Settings for Fuel Injection Fump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed 2b timitation intermediate speed	Fuel deliv	rery characteristics 5a poeed 5b	Starting idle switchir	• •	Torque- travel	Control roo
rev/min	cm ³ /1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 750 LDA 1050	1,0 bar 218,0-220,0 (215,0-223,0) 1,0 bar 180,0-186,0 (177,0-189,0	.	LDA 500 LDA 500	0,34 bar 144,0-150,0 (141,0-153,0 0 bar 102,0-104,0 (99,0-107,0)	205,0-225,0 (201,0-229,0	1050 850	13,1+0, 11,3+0, 12,6÷0, 11,7+0,

Checking values in brackets

1 mm less control rod travel than col. 2

-2-

MAN 11,1 q 15

D. Adjustment Test for Manifold Pressure Compensator

Testatn =

500

rev/min decreasing pressure – in bar gauge pressure

diminution
Control rod travel-Pump/governor Setting Measurement difference Gauge pressure = bar | Gauge pressure = bar mm (1) 13,1-13,2 PES 6 P..LS 388 1,0 9,4-9,5 10,9-11,0 12,5-12,9 0 +RQV..PA 671-2 0,34 0,61

Notes:

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 DAF 11,6 v 5

1. Edition

PE 6 P 110 A 320 RS 407-1 Komb.-Nr. 0 401 876 305

RSV 275-1000 P 5 A 508-5

supersedes

company DAF

engine **DKCL 1160** 155 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95)

Testoil-ISO 4113

mm (from BDC)

RW = 9.0 - 12.0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ⁻¹ /100 strokes 3	Difference cm ¹ / 100 strckes 4	Control rod travel mm 2	Fuel delivery , cm/100 strokes	Spring pre-tensioning (torque-control valve) mm 6
600	12,3÷0,1	14,0-14,2	0,4(0,75)			
275	7,0-7,2	0,9-1,4	0,45(0,75)			
						,

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Upps	er rated speed	f rev/min	Interme	diate rate	d speed	4	Lower	rated speed	(3) To	rque control
Degree of deflection of control lever	Control rod travel mm	Controt rod travel mm rev/min	4	5	6	Control- lever deflection in degrees	rev/min 8	Control rod travel mm	rev/min	Centrol rod travel mm
loose	800 X = 4	0,3-0,7 1,5	-	-	<u>-</u>	ca. 23	275 275	6,6 7,0-7,2 5 = 2,0	600 1000 750	12,5-12,6 11,1-11,3 12,1-12,3
ca.48	10,1 4,0 1325	1040-1050 1160-1190 0,3-1,4					0/3-/3	ρ = 2, 0	850	11,4-11,7

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	Speed minital Characteristics			Starting (fuel delivery 5	4a Idle stop	
rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min B	Control rod travel mm
LDA 600	0,7 bar 139,5-141,5 (137,0-144,0)	1040-1050*	LDA 1000 LDA 600	0,7 bar 115,0-119,0 (112,0-122,0) 0 bar 137,0-139,0 (134,5-141,5)	100 275	245,0-265, (241,0-269) 9,0-14,0 (6,5-16,5)	0 - ,0)	-

Checking values in brackets

^{* 1} mm less control rod travel than col 2

Test at n =

Som

rev/min decreasing pressure - in bar gauge pressure

DAF 11,6 v 5

. 2 -

900	•		
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (†) .
PE 6 PRS 407-1 + RSVP 5 A 508-		0 0,28	12,3-12.4 12,1-12,2 12,2-12,3

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 DAF 11,6 o 7

1. Edition

En

PE 6 P 120 A 320 RS 415-1

RSV 250-1000 P5A 508-1

supersedes_

Komb.-Nr. 0 401 876 295

company DAF DKZ 1160 engine

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8-2,9 (2,75-2,95)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm7100 strokes	cm ¹ / 100 strokes	mm	cm1/100 strokes	mm
1	2	3	4	2	3	6
850	12,5+0,1	20,6-20,8	0,5 (0,9)			
250	6,7-6,9	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

1 Uppe	r rated speed	I rev/min	Intermed	diate rated	speed	(4)	Lower	raled speed	(3) 10	rque control
Degree of deflection	Control rod travel	Control rod travel	<u>:</u>]	Control- lever		Control rod travel		Control rod travel
of control	mm	mm rev/min		Ì		deflection in degrees	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	_	-	-	ca. 23	250	6,0	850	12,7-12,8
	x = 4	,8					250	6,4-6,6	400 300	12,7-12,8 12,9-13,4
ca. 49	11,5	1035-1045					660-720	2,0		
(2a)	4,0 1350	1190-1220 0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp 40°C (104°F)	Rotational- speed limitat	uoa:	nel delivery aracteristics	Starting (uel delivery 5	(4a) Idi	e stop
rev/min	cm [.] /1000 strokes 2	changed to .) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm*/1000 strokes 7	rev/min 8	travel mm 9
LDA 850	0,7 bar 206,0-208,0 (203,0-211,0)	1035-1045*	LDA 600	0 bar 140,0-142,0 (137,0-145,0)		305,0-345, 301,0-349,		-

Checking values in brackets

* 1 mm less control rod travel than col 2

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung € 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Sluttgart 1. Printed in the Federal Republic of Germany Imprimé en Republique Fédérale d'Allemagne par Robert Bosch GmbH.

DAF 11,6 o 7

. 2 -

Test at n =

600

rev/min decreasing pressure – in bar gauge pressure

000			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 415-1 + RSVP5A 508-1	0,70	0 0,34 0,26	12,5-12,6 10,3-10,5 11,8-11,9 10,6-11,0

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

En

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 DAF 11,6 o 8

1. Edition

PE 6 P 120 A 320 RS 415-1 Komb.-Nr. 0 401 876 296

RSV 250-1100 P5A 508-2

supersedes_

company DAF

DKX 1160 engine

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8-2,9 (2,75-2,95)

mm (from BDC)

Rotational speed rev/min t	Control rod travel mm 2	Fuel delivery cm ¹ / ₁ 00 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm 1/100 strokes	Spring pre-tensioning (torque-control valve) mm 6
850	11,6+0,1	18,7-18,9	0,5 (0,9)			
250	6,7-6,9	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	Control rod travel mm	rev/min Control rod travel mm rev/min 3	Interm	ediate rate	ed speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm 9	rev/min	rque controi Control rod travel mm 11
loose	800 x = 4	0,3-1,7 ,8	-	-	-	ca. 23	250 250	6,0 6,4-6,6	850 400 300	11,8-11,9 11,8-12,0 12,1-12,6
ca. 53	10,6 4,0 1430	1135-1145 1270-1300 0,3-1,4					640-700	=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp. 40°C (104°F)	6 Rotational- speed limitat	3a Fu	Fuel delivery characteristics		uel delivery 5	da Idle stop	
rev/min	cm ³ /1000 strokes 2	changed to) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rav/min 8	travel mm 9
LDA 850	0,7 bar 187,0-189,0 (184,0-192,0)	1135-1145*	LDA 600	0 bar 140,0-142,0 (137,0-145,0)	100	305,0-345 (301,0-349		

Checking values in brackets

^{* 1} mm less control rod travel than col 2

Test at n = rev/min decreasing pressure - in bar gauge pressure
600

DAF 11,6 o 8

- 2 -

600			
Purup/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 415-1 + RSVP5A 508-2	0,7	0 0,30 0,26	11,6-11,7 10,3-10,5 11,3-11,4 10,8-11,1
		. A 	

Notes:

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 11.6 o 9

1. Edition

PE 6 P 120 A 320 RS 415-1 Y

RSV 250-900 P5A 508

supersedes= company DAF

DKZ 1160 E

Komb.-Nr. 0 401 876 294

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8-2,9 (2,75-2,95)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm 1/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
875	11,4+0,1	18,2-18,4	0,5 (0,9)			
250	6,7-6,9	1,4-2,0	0,8 (1,2)			
				<u> </u>		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	l rev/min	Interm	ediate rati	ed speed	(4)	Lower	rated speed	1 (2)	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-0,7	-			ca. 21	250	6,0	875	11,4-11,5
	x = 4	,3					250	6,4-6,6	600 725	12,4-12,5 12,0-12,2
ca. 45	10,4 4,0 1180	935-945 1020-1050 0,3-1,4					395-45	2=4,0	775	11,7-11,9

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	ill-load stop	6 Rotational- speed limitat		uel delivery paracteristics	Starting f	uel delivery 5	4a Idle stop	
Test oil to rev/min	emp. 40°C (104°F) cm³/1000 strokes 2	Note. changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 875	0,7 bar 182,0-184,0 (179,0-187,0)	935-945*	LDA 600	0,7 bar 186,0-192,0 (183,0-195,0)	100	305,0-345 (301,0-349		-

Checking values in brackets

* 1 mm less control rod travel than col 2

DAF 11,6 o 9

- 2 -

Testatn =

600

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel-
	Gauge pressure = bar	Gauge pressure = bar	difference mm (1)
PE 6 PRS 415-1 Y + RSVP5A 508	0,7	0 0,35 0,26	12,2-12,3 10,3-10,5 11,7-11,8 10,7-11,1

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 DAF 11,6 o 10

1. Edition

En

PE 6 P 120 A 320 RS 415-1 Z

RSV 250-900 P5A 508

supersedes—
company DAF

Komb.-Nr. 0 401 876 293

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

engine DKX 1160 E

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8-2,9 (2,75-2,95)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ¹ /100 strokes	cm ¹ / 100 strokes	mm	cm1/100 strokes	mm
1	2	3	4	2	3	6
875	11,0+0,1	17,1-17,3	0,5 (0,9)			
250	6,7-6,9	1,4-2,0	0,8 (1,2)			
			·			3

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed		Interme	diate rated	speed	(4)	Lower	rated speed	1(3)	rque control
Degree of deflection of control	travel mm	Control rod travel mm rev/min				Control- lever deflection	re:/min	travel	rev/min	Control rod travel
lever	2	3	4	5	6	in degrees 7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 26	250	6,0		11,0-11,1
	x = 4	1,5					250	6,4-6,6	600 725	11,9-12,0 11,5-11,7
ca. 49	10,0 4,0 1180	935-945 1020-1050 0,3-1,4					395-455	=2,0	775	11,2-11,4

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp=40°C (104°F)	Rotational- speed limitat		nel delivery naracteristics	Starting fuel delivery 5 4a tidle stop			e stop Control rod
rev/min	cm4/1000 strokes 2	changed to .) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm 9
LDA 875	0,7 bar 171,0-173,0 (168,0-176,0)	935~945*	LDA 600 LDA 600	0,7 bar 172,0-178,0 (169,0-181,0) 0 bar 140,0-142,0 (137,0-145,0)		305,0-345, 301,0-349,		-

Checking values in brackets

* : mm less control rod travel than col 2

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. c. 1980 by Robert Bosch GmbH, Postlach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

DAF 11,6 o 10

Testatn =

600

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 415-1 Z + RSVP5A 508	0,7	0 0,30 0,26	11,6-11,7 10,3-10,5 11,1-11,2 10,6-10,8

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 11,6 o 11

1. Edition

PE 6 P 120 A 320 RS 415-1 Z

RSV 250-1100 P5A 508-4

supersed∈s=

Komb.-Nr. 0 401 876 323

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

DAF company **DKV 1160**

Part test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

. Fuel Injection Pump Settings

ort closing at prestroke

2,8-2,9 (2,75-2,95)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ¹ /100 strokes	cm ¹ / 100 strokes 4	mm 2	cm*/100 strokes	mm 6
650	11,0+0,1	16,7-16,9	0,5 (0,9)			
250	6,5-6,7	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in E

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm	Control rod travet mm rev/min	Intermediate rated speed 4 5 6		ハマノ		rated speed Control rod travel mm 9	I(3 /	rque control Control rod travel mm	
loose	800 x = 1	0,3-0,7 5,0	-	-	- -	ca. 24	250 250	5,8 6,2-6,4	1090 825	
ca. 54	8,6 4,0 1370	1135-1145 1210-1240 0,3-1,4					650-71	0=2,0	925	9,9-10,2

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp 40°C (104°F)	Rotational- speed limitat		iel delivery jaracteristics	Starting t	ivel delivery 5	(4a) Idi	e stop Control rod
rev/min	cm://1000 strokes 2	changed to .) rev/min	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ¹ /1000 strokes 7	rev/min 8	travel mm 9
LDA 550	0,7 bar 167,0-169,0 (164,0-172,0)	-	LDA 1090	0,7 bar 147,0-151,0 (144,0-154,0)	100	320,0-360 (316,0-364		-
			LDA 600	0 bar 135,0-137,0 (132,0-140,0)				400

Checking values in brackets

10.85

BOSCH

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^{* 1} mm less control rod travel than cot 2

DAF 11,6 o 11 rev/min decreasing pressure - in bar gauge pressure Test at n = 600 diminution Pump/governor Setting Measurement difference Gauge pressure = Gauge pressure = bar mm (1) 11,0-11,1 9,9-10,0 10,7-10,9 10,1-10,5 PE 6 P..RS 415-1 Z 0,7 RSV..P5A 508-4 0,29

0,26

MOLES	N	ol	e	5
-------	---	----	---	---

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 RVI 9,8 a 4

2. Edition

PES 6 P 120 A 320 RS 419

ROV 275-1100 PA 495-6

supersedes 7.84

Komb-Nr. 0 402 046 302

company: RVI

MIDR 062030

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

191 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres		2.75 - 2.95)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	9,3-9,4	17,3 - 17,5	0,5 (0,9)			
275	4,6-4,6	1,7 - 2,3	0,8 (1,2)			
Port clos	ing mark	 10.5°after port	closing	cvlinder	1	

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

	rev/min	Control rod	(1a)	Intermediate Degree of deflection	rated sp	eed Control rod travel	Lower rated Degree of deflection	speed	Control rod	Sliding s	leeve travel
1 .	rod travel mm	_	(2a)	of control lever	rev/min 5		of control lever	rev/min 8	mm 3	rev/min	mm
max.	1150	î5,2 -	17,8	-	_	-	ca. 10	200	min.5,0	250	1,0-1,2
ca.65	8,3 4,0 1350		1165 12 5 0 0				290-400	275	3,2-3,4	475 900 1100	3,5-4,0 6,4-6,6 8,1
							(3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		limitation intermediate speed	high idle s	very characteristics 5a speed 5b	Starting Idle switchin	,	Torque- travel	Control od
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1100	0,7 bar 173,0-175,0 (170,0-178,0)	1155 - 1165*	LDA 700 LDA 500	0,7 bar 159,0-165,0 (156,0-168,0) 0 bar 93,0-95,0 (90,0-98,0)	100 275	140,0-160,0 (136,0-164,0) 3,2 -3, 4 mm F	w	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

RVI 9,8 a 4

-2-

Test at n =

500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Giminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P RS 419	0,70		9,3 - 9,4
+ RQVPA 495-6		0	7,2 - 7,3
		0,27	3,7 - 8,8
		0,22	7,9 - 8,1
			·
	·		

Notes:

(1) when n =

rev/min and gauge pressure =

estoil-ISO 4113

WPP 001/4 RVI 8,8 d 3

2. Edition

PES 6 P 120 A 320 RS 419-2 Komb.-Nr. 0 402 046 293

RQV 275-950 PA 698

supersedes 7.84

company:

RVI MIDS 062045

129 kW

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

A. Fuel Injection Pump Settings Port closing mark 9.5° after port closing cylinder 1

Port closing at pre	stroke (2,75-2,95)	mm (from BDC)	,0 - 12,0		
Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensionin (torque-control valve mm 6
500	7,9-8,0	10,4-10,6	0,5(0,9)			
275	4,3-4,5	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in F

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Sliding	leeve travel
deflection	rev/min Control rod travel mm 2	Control rod travel mm rev/min 28	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of controt lever 7	rev/min 8	Control rod travel mm 3	rev/min	mm
max.	1070	15,2-17,8	-	-	_	ca. 8		min. 5,1		1,5-1,6
ca. 62	6,3 4,0 1200	1010-1020 1045-1075 0-1,0				280-395		β,3 - 3,5		3,8-4,3 6,4-6,7 7,6
						3 a)				

0,6 mm Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		intermediate speed	(30)		Idle	fuel delivery 6	Torque travel	Control root
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
500	104,0-106,0 (10 1 ,0-109,0)	1010-1020*	950	122,0-128,0 (119,0-131,0		150,0-170,0 (146,0-164,0 3,3-3,5 mm RW	950 750	7,9-8,0 7,2-7,3 7,5-7,7 7,3-7,6

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

Geschäftsbereich KH. Kundendienst. Kfz-Ausrustung. & by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50. Printed in the Federal Republic of Germany Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

Testoil-ISO

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MAN 11.4 a 2

2. Edition

PES 6 P 120 A 320 LS 429 RQV 250-1100 PA 676

supersedes 7.83 company: MAN

Komb.-Nr. 0 402 046 285

engine: D 2566 MKUL 235 kW/2200 min⁻¹

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
13.0+0,0	21,5-21,7	0,5(0,9)			
6,3-6,5	1,2-1,8	0,8(1,2)			
} 					
	mm 2 13.0+0,0	Control rod travel mm cm³/100 strokes 2 13.0+0,0 21,5-21,7	travel cm ³ /100 strokes cm ³ / 100 strokes 2 13.0+0,0 21,5-21,7 0,5(0,9)	Control rod travel mm cm³/100 strokes 2 13.0+0,0 Control rod travel mm cm³/100 strokes 4 Control rod travel mm 2 0,5(0,9)	Control rod travel mm cm³/100 strokes 2 13.0+0,0 Control rod travel Com³/ 100 strokes 4 Control rod travel mm cm³/100 strokes 4 Control rod travel mm cm³/100 strokes 2 3 13.0+0,0 21,5-21,7 0,5(0,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed	 	Intermedial	e rated sp	eed	Lower rated	speed	4	Sliding s	leeve travel
deflection	rev/min Control	Control rod travel	7 00110011011	ľ	Control rod travel	Degree of deflection of control		Control rod travel		1
	rod travel mm	mm rev/min (2	of control	rev/min	mm (4)	lever	rev/min	mm 3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1130	15,2-17,	-	-	-	ca. 12	100 250	min.7,9 6,3-6,5		1,7-2,0 5,7-5,9
ca. 64	10,3 4,0 1350	1230-126				395-520			1100	
		_				(3a)				

Torque control travel a = 1,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter	d stop	Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics 5a	Starting Idle switching	•	Torque- travel	Control rod
rev/min cm³/1000 strokes		rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	ŝ	4	5	6	7	8	9
LDA 750	1,0 bar 215,0-217,0 (212,0-220,0)		LDA 500	0,29 bar 134,0-140,0 (131,0-143,0	E .	205,0-225,0 (201,0-229,0 12,0-18,0	1100	13,0+0, 11,3+0, 12,6+0,
1100	177,0-183,0 (174,0-186,0		LDA 500	0 bar 111,0-113,0		(9,0-21,0)	985	11,7+0,
650	206,0-212,0 (203,0-215,0)			(108,0-116,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

MAN 11,4 a 2

-2-

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure increasing

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 PLS 429 + RQVPA 676	1,0	0 0,29 0,58	13,0-13,1 9,7-9,8 10,7-10,8 12,4-12,7

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

D19

314

En

①

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 9,5 a 340 3. Edition

PES 5 P 110 A 820 LS 434 RQV 300-1100 PA 594-1

Komb.-Nr. 0 402 045 024 1 - 3 - 5 - 4 - 2 je 72 ° - 0,5 ° (- 0,75 °)

supersedes 7.83

company: Daimler-Benz

OM 409

135 kW (184 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1100	11,0+0,1	11,0-11,2	0,4(0,8)			
300	8,1-8,3	1,2-1,8	0,4(0,7)			
					İ	į

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

peed	,	Intermedia	te rated sp	eed		Lower rated	speed			Sliding sleeve travel	
rev/min Control	traver	✓ denection		Control rod travel		Degree of deflection		Control re travel	od		1
mm mm	rev/min (2		rev/min	mm (4)	lever	rey/min	ww	(3)	rev/min	mm
2	3	4	5	6		7	8	9		10	11
1150	15,2-17,	8 -	-	-		ca.40	,				1,0-1,3
10.0	1140-115	0					300	1 0,0-0		820	3,9-4,2 5,5-5,8
4,0	1175-120	5				320-435				1100	8,2
1300	0 - 1,	"				(3a)					
1	control cod travel nm 2 1150	ev/min Control rod (1 travel mm rev/min 2 3 1150 15,2-17, 10,0 1175-120	Control rod travel mm rev/min 2 3 1150 15,2-17,8 - 10,0 1140-1150 4,0 1175-1205	Control rod Ta Control rod Ta Control rod Ta Control	Control rod (a) Degree of deflection of control lever as a control rev/min 2 as a control lever 4 as a control rev/min 5 as a control lever 4 as a control rev/min 6 as a control lever 4 as a control rev/min 6 as a control rev/min	control rod tavel rod travel rod travel rod travel rod travel rod travel rod rev/min 2a 3	Control rod Control rod	Control rod Travel Control rod Travel Control rod Travel Control rod Travel Control rod Control rod Control rev/min Control rod Control rod Control rev/min Control rev/min Control rod Control rev/min Control rod Control rev/min Control rod Control rev/min Control rod Control rev/min Control rod Control rod Control rod Control rev/min Control rod Co	Control rod Control rod Control rod Control rod Control rod Control rod Control rod Control rod Control rod Control rod Control rod Control rod Control rod Control rev/min Control rod Control rod Control rod Control rev/min Control rod Contro	Control rod Control rod	Control rod Control rod

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics 5a poeed 5b	Starting Idle switchir	\circ	Torque- travel	Control cod	
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm³/1⊈69© strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm	
1	2	3	4	\$	6	7	8	9	
1100	110,0-112,0 (107,0-115,0)		6 00	91,0-93,0 (88,0-96,0	190	130,0-150,0 (126,0-154,0	,	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

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Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 DAF 11,6 u 5

1. Edition

En

PE 6 P 110 A 720 RS 441 RSV 250-1200 P 5 A 509-1

Komb.-Nr. 0 401 876 317

supersedes

company DAF

engine DHS 825

150 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port clusing at prestroke

2,8-2,9 (2,75-2,95)

mm (from BDC)

RW = 9,0 - 12,0 mm

Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
mm 2	cm ¹ /100 strokes	cm ³ / 100 strokes	mm	cm //100 strokes	mm
12,2+0,1	13,7-14,0	0,4 (0,75)	3	6
5,0-5,2	0,7-1,2	0,45 (0,75)		
	travel mm 2 12,2+0,1	travel mm 2 cm ¹ /100 strokes 3 12,2+0,1 13,7-14,0	travel mm 2 cm ¹ /100 strokes cm ¹ /100 strokes 4 12,2+0,1 13,7-14,0 0,4 (0,75)	travel mm 2 cm ¹ /100 strokes 3 12,2+0,1 13,7-14,0 0,4 (0,75)	travel

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	er rated speed	d rev/min	Interme	diate rated	speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection	travel	Control rod travel				Control- lever		Control rod travel		Control rod travel
of control lever 1	mm 2	mm rev/min	4	5	6	deflection in degrees 7	rev/min 8	9	rev/min 10	mm 11
loose	800	0,3-0,7	-	-	-	ca. 24	250	4,6	1000	12,4-12,5
	X = 5	,0					250	5,0-5,2	400	12,4-12,6
	4,0 1	240-1250 330-1360 ,3-1,4					525-58	5 = 2,0	300	12,7-13,2

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	6 Rotational- speed limitat	11.361	rel delivery paracteristics	Starting tole	uel delivery 5	4a) Idle stop		
rev/min	cm³/1000 strokes	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes 7	rev/min	Control rod travel mm	
LDA 1000	0,7 bar 136,5-139,5 (134,0-142,0)	1240 - 1250*	LDA 600	0 bar 91,5-94,5 (89,0-97,0)	100	245,0-285 (241,0-289		-	

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

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Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. ? 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

DAF 11,6 a 5 - 2 -

Test at n =

600

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 P. RS 441 + RSV. P5A 509-	0,7	0 0,36 0,27	12,2-12,3 10,1-10,2 11,7-11,8 10,8-11,2

Notes.

(1) when n =

rev/min and gauge pressure =

WPP 001/4 MB 11,4 1 11

2. Edition

En

PES 6 P 110 A 820 LS 442

ROV 300-1100 PA 594-4

Komb.-Nr. 0 402 046 229

supersedes 7.84

company Daimler-Benz

engine OM 407 176 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.15 - 3.35)

mm (from BDC)

Rotational speed rev/m	Control rod travel mm 2	Fuel delivery cm³/100 strokes	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1108	11,7+8 _s	12,9-13,1	0,4(0,75			
300 600	7,3-å,n -		0,45(0,79 0,6 (0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

deflection	rev/min Control	trave:	(8)	Intermediate Degree of deflection	rated sp	eed Control r travel	od	Lower rated Degree of deflection	speed	Control rod Iravel	Stidings	sleeve travel
of control lever	rod travel mm	mm rev/min (2 a)	of control lever	rev/min	mm	4	of control lever	rev/min	mm 3	rev/min	ì
<u> </u>	2	3		4	5	6		7	8	9	10	11
max.	1140	15,2-17,	8	-	-		-	ca.30		min.9.5	250	1,0-1,2
ca.61	10,7	1140-115	Ū						300	7,8-8,0		3,5-3,7
	4,0	1180-121	0					,				5,0-5,4
	1300	0 - 1,0						340-470			1100	7,7
		·		·								
											l	
								(3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roe Test oil ten		intermediate speed	Fuel deliv	very characteristics 5a	Starting Idle switchir	, 0	Torque- travel	Control rod
rev/min	cm³/1000 strokes .	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
1100	129,0-131,0 (126,5-133,5		600	113,0-117,0 (110,0-120,0)	100	130,0-150,0 (126,0-154,0		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

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Test Specifications Fuel injection Pumps (A) and Governors

40

WPP 001/4 DAF 8.3 o 12

1. Edition

En

PE 6 P 100 A 720 RS 447-1 Komb.-Nr.0 401 876 299

RSV 250-750 P 7A 507-1

supersedes

companDAF

engine DHT 825 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,2-3,3 (3,15-3,35)

mm (from BDC)

Rotational speed	Control rod travel	Fuet delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque control valve)
rev/min	mm (2)	cm 1100 strokes	100 strokes	mm 2	cm /100 strakes	mm 6
750	12,7+0,1	14,3-14,5	0,35(0,6)			
250	5,3-5,5	0,9-1,3	0,35(0,55)			
					į	
	1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	er rated speed		Interm	ediate rate	d speed	(4)	Lower	rated speed	(3) 10	rque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control- lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control Fod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-0,7	-	-	-	ca. 17	250	5,4	-	-	
	x = 3	75					250	5,3-5,5			
ca. 44	11,7	790-795					250-2	95=2,0**			ĺ
(2a)		810-825 0,3-1,7 **									
			Set	<u>idle-s</u>	peed a	duxiliary	spring	at 2 mm	contro	l-rod trave	11

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat		iel delivery aracteristics	Starting f	uel delivery 5	(4a) 1d1	e stop
rev/min	emp 40°C (104°F) cm //1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm1/1000 strakes 7	rev/min 8	Control rod travel mm
750	142,5-144,5 (140,5-146,5)	790-795 *	-	-	250	9,0-13,0 (6,5-15,5	_)	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.85

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Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 8,3 911

1. Edition

PE 6 P 100 A 720 RS 447 Komb.-Nr. 0 401 876 316

RSV250-1200 P 5 A 509-1

company DAF **DHT 825** 162,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,15-3,35)

mm (from BDC)

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm³/100 strokes	cm ¹ / 100 strokes	mm 2	cm ¹ /100 strokes	mm 6
1000	11,4+0,1	11,9-12,1	0,35 (0,6)			
250	5,3-5,5	0,8-1,2	0,35(0,55)			
				ļ		

Adjust the fuel delivery from each outlet according to the values in E

B. Governor Settings

1 Uppe	er rated speed	tev/min	Interme	diate rated	speed	(4)	Lower	rated speed	(3) to	rque control
Degree of deflection	Control rod travel	Control rod travel			-	Control- lever		Control rod travel		Control rod travel
of control lever	mm	mm rev/min				deflection in degrees	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 24	250	4,9	1000	11,6-11,7
	X = 5	,0					100	min. 7,0		11,6-11,8
ca. 58	10,4 4,0 1530	1240-1250 1325-1355 0,3-1,4					250 540-60	5,3-5,5 0 = 2,0	300	11,9-12,4

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ult-load stop emp=40°C (104°F)	Rotational- speed limitat	16001	Fuel delivery characteristics		uel delivery 5	(4a) Idi	e stop [Control rod
rev/min	cm //1000 strokes 2	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ¹ /1000 strokes 7	rev/min 8	travel mm 9
LDA 1000	0,7 bar 118,5-120,5 (116,5-122,5)	1240-1250*	LDA 600	0 bar 92,5-96,5 (90,0-99,0)	100	210,0-230 (206,0-234	1	-

Checking values in brackets

^{* 1} mm less control rod travel than col. 2

DAF 8,3 o 11

- 2 -

Test at n =

600

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6PRS 447 + RSVP5A 509-1	0,7	0 0,32 0,23	11,4-11,5 10,4-10,5 11,1-11,2 10,5-10,9

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MAN 11,4 e 2

1. Edition

PES 6 P 110 A 720 LS 455 Komb.-Nr. 0 402 046 238

RQV 250-1100 PA 580

supersedes =

company: MAN

engine:

D 2566 MTE 206,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control vaive) mm 6
1100	12,4+0,1	14,6-14,9	0,4(0,75)			
250	7,3-7,5	1,0-1,5	0,45(0,75)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed			:ntermediate	e rated sp	eed		Lower rate	speed			Sliding	leeve travel
Degree of deflection of control lever	rev/min Controt rod travet mm 2	Control rod travel mm rev/min 3	(a) (2a)	Degree of deflection of control lever	rev/min 5	Control travel mm 6	rod 4	Degree of deflection of control lever 7	rev/min	Control ro travel mm 9) (3)	rev/min	mm
max.	1140 11,4 4,0 1350	15,2-17 1140-11 1210-12 0-1,	50 40	-	-	-		ca. 12	100 250 340-4	min.8 7,3-7 00=2,0	,5	300 850 1100	1,4-1,7 5,3-5,6 7,9

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter rev/min	d stop np. 40°C (104°F) 2	Rotational-speed (2b) limitation intermediate speed rev/min (4a)	high idle s	very characteristics 5a speed 5b	Starting Idle switchin	ng point	Torque- travel	Control 5 Control rod travel mm
LDA 1100	0,7 bar 146,0-149,0 (143,5-151,5	1140-1150*	LDA 500 LDA 500	0,2 bar 123,0-127,0 (120,0-130,0 0 bar 110,0-113,0 (107,5-115,5)	7 225,0-245,0 (221,0-249,0)	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

MAN 11,4 e 2

- 2 -

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = 0 bar	mm (1)
PES 6 PLS 455 mit RQVPA 580	0,7	0 0,20	12,4-12,5 11,3-11,4 11,8-11,9

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

E4

F4

En

 \odot

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,4 e

2. Edition

PES 6 P 110 A 720 LS 455

RQV 250-1100 PA 674

supersedes 7.84 company: MAN

Komb.-Nr. 0 402 045 307

engine: D 2566 MTE

184 kW/2200 min-1

MAN-Nr. 2-7323

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke (2.95-3.15)	mm (from BDC)	Cy1. 6		
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
800	12,8+0,1	15,9-16,2	0,4(0,75)			
250	6,9-7,1	1,1-1,6	0,45(0,75			
į						
i				<u> </u>		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated :	speed		Intermediate	e rated sp	eed	Lower rated	speed	Slidings	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rev/min 2a	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min mm 3		1
max.	1150	15,2-17,8		-	-	ca. 16	100 min.8,5		1,5-1,8
ca.52	10,5 4,0 1350	1140-1150 1205-1235 0-1,0					250 6,9-7,1 340-400 = 2,0	800 1100	5 ,1 -5,4 8 , 8
						(3a)			

Torque control travel a = 1,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

plivery I stop Ip. 40°C (104°F) 2	Rotational-speed (2b) limitation intermediate speed			Idle		Torque- travel	control 5	
cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm	
2	3	4	5	6	7	8	_9	
0,7 bar 159,0-162,0 (156,5-164,5		LDA 650	0,7 bar 160,0-164,0 (157,0-167,0)	100		900	12,8+0, 11,5+0, 12,4+0,	
•		LDA 500	0 bar 97,0-100,0 (94,5-102,5)		·	1000	11,7+0,	
	0,7 bar 159,0-162,0 (156,5-164,5 0,7 bar 136,0-140,0	1000 strokes limitation intermediate speed rev/min 3 1140-1150* 159,0-162,0 (156,5-164,5	Stop p	Stop 104°C (104°F) 2 Imitation Intermediate speed 104°C (104°F) 2	Stop p. 40°C (104°F) 2 Imitation intermediate speed rev/min 2 3 4 5 6	Stop p 40°C (104°F) 2 Ilimitation intermediate speed Sb Idle switching point cm³/1000 strokes rev/min rev/min rev/min rev/min rev/min rev/min rev/min rev/min rev/min rev/min rev/min rev/min rev/min rev/min rev/min rev/min rev/min rev/min rev/min rev/min	Stop p. 40°C (104°F) 2 Ilmitation intermediate speed rev/min 2 3 4 5 6 7 8 2 1 40°C (104°F) 2 3 4 5 6 7 8 4 5 6 7 8 6 7 8 6 7 6 7 8 6 7 8 6 7 8 6 7 8 6 7 8 6 7 8 6 7 8 8	

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

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MAN 11,4 e

- 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 PLS 455 + RQVPA 674	0,70	0 0,28 0,11	12,8-12,9 10,2-10,3 12,1-12,2 10,7-11,0

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11.4 e 1

2. Edition

PES 6 P 110 A 720 LS 455

RQV 250-1100 PA 675

Komb.-Nr. 0 402 046 284

supersede7.84
companyMAN
D 2566 MTE
engine: 206 kW/2200 min
Excavator
MAN-Nr. 2-7235

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Rotational speed	Control rod travel	2,95-3,15) Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm³/ 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
1100	12,1+0,1	14,7-15,0	0,4 (0,75)		
250	7,0-7,2	1,1-1,6	0,45(0,75)		
		:				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Slidings	leeve travel
	rev/min Control rod travel mm 2	Control rod ta travel mm rev/min 2a	Degree of deffection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	1
max.	1150	15,2-17,8	-	_	-	ca. 13	100	min.8,6	300	1,4-1,7
ca. 46	11,1 4,0 1350	1140-1150 1220-1250 0-1,0				۰	250 340-	7,0-7,2 400 = 2,0	800 1100	5,0-5,2 7,9
						(3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

	d stop np. 40°C (104°F) 2	limitation, intermediate speed	high idle s		ldle switchin	ng point	Torque- travel	Control rod
ten/win	cm ³ /1000 strokes	rev/min 🐨	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
1100	147,0-150,0 (144,5-152,5		-	- -	100	225,0-245,0 (221,0-249,0		-

Checking values in brackets

* 1 mm less control rod travel than coi 2

11.85

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Test Specifications Fuel Injection Pumps 2 and Governors

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WPP 001/4 MAN 11,4 e 3

En

PES 6 P 110 A 720 LS 455 RQ 250/1100 PA 743 Komb.-Nr. 0 402 046 312

supersedes...

company MAN

engine D 2566 MTE 206.0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC) Cy1. 6; RW = 9,0-12,0 mm

		L, 33-3, 137				
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,1+0,1	17,8-18,1	0,4 (0,75			
250	6,7-6,9	1,1-1,6	0,45(0,75)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider	Full-load		•	cifications (4)	Idle spec	-		cifications (5)	Torque	
rev/min	Control rod travel	rev/min	Control rod travel rmm	Control rod travel mm	rev/min	rev/min 7	Control rod travel	rev/min 9	Control rod	rev/min	Control rod travel mm
600 VH =	19,2-20,8 max. 46 °	600	20,0		1145-1160 1205-1235 0 - 1,0	250	6,8	250	nin. 8,3 6,7-6,9 380 = 2,0		13,1-13,2 13,1-13,3

Torque-control travel on flyweight assembly dimension a =

m

1145-1160 min-1 Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	36)	Starting f Idle spee	. —
rev/min	cm³/-1000 strokes	rev/min 3	rev/min 4	cm³/-1000 strokes		rev/min 6	Control rod travel cm ³ /1000 strokes/mm
1100	178,0-181,0 (175,5-183,5)					100	225,0-245,0 (221,0-249,0)

Checking values in brackets

2

estoil-ISO 411

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MAN 14,4 c 3. Edition

PES 6 P 120 A 720 LS 457

RQ 750 PA 566

supersed 4.84

company MAN

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067 Komb.-Nr. 0 402 046 250

engine: D 2566 MLE 198 kW/1500 min MAN-Nr. 2-7341

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Control rod travel

12,5+0,

6, 1-6, 3

mm

Port closing at prestroke

Rotational speed

rev/min

700

250

3,0-3,1(2,95-3,15)

cm³/100 strokes

20,2-20,4

1,5-2,1

Fuel delivery

mm (from BDC) Cy1. 6; RW = 9.0-12.0 mm

(5/11 656/		- NH - J,U-12,	· · · · · · · · · · · · · · · · · · ·
Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
100 strokes	mm	cm ³ /100 strokes	mm
4	2	3	6
0,5(0,9)			
0,8(1,2)			
	}	1	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ick	\bigcirc	Full-load s	•	•	cifications (4)	idle spec	•		cifications (5)	Torque o	(2)
	Control rod travel	U	rev/min 3	Control rod travel rmm 4	Control red travel rnrn 5	rev/min 6	rev/min	Control rod travel	rev/min 9	Control rod travel	rev/min 11	Control rod travel mm
•	-		1	-	11,5 4,0 900	750-755 776-789 0-1,0	-	-	-	-	•	-

Torque-control travel

Speed regulation: 750-755 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting f	uel delivery
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min 4	cm³/–1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes / mm
700	202,0-204,0 (199,0-207,0)	-	-	-	-	•

Checking values in brackets

2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MAN 11,4 c 1

2. Edition

PES 6 P 120 A 720 LS 457

RQ 750 PA 661

supersedes 7.84

Komb.-Nr. 0 402 046 267

company: MAN

Values only apply to test nozzle-and-holder assembly

D 2566 MLE engine:

198 kW /1500 min

1 688 901 019 and fuel-injection test tubing 1 680 750 067

MAN-Nr. 2-7341

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,95-3,15)

mm (from BDC) Cy1. 6; RW = 9,0-12,0 mm

Rotational speed rev/min 1	travel	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes ² 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,5+0,1	20,2-20,4	0,5(0,8)			·
250	6,1-6,3	1,5-2,1	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	cking of slider Full-load speed regulation check 1 Setting point Test specifications 4					nifications (1)	Idle speed regulation Setting point Test specifications (5)			Torque o	\sim	
	Control rod travel	\cdot	•	Control rod travel mrn 4	Control	rev/min	rev/min	Control rod travel rmm •	rev/min	Control rod	rev/min	Control rod travel mm
-	-		-	•	11,5 4,0 900	750-755 776-789 0-1,0		<u>-</u>	-	-		-

Torque-control travel

750 - 755 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop	Fuel delive	ery characteristics	Starting f	uel delivery d Gontroi
rev/min	cm³/-1000 strokes	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min	red travel cm ³ /1000 strokes / mm
700	202,0-204,0 (199,0-207,0)	-	-	-	~	•

Checking values in brackets

Testoil-ISC

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 MAN 11,9 a 4 2. Edition

Er

PES 6 P 120 A 720 LS 470 RQ 250/1100 PA 658-9 Komb.-Nr. 0 402 046 308 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 7 84

engine:

D 2866 KUH 265 kW/2200 min⁻¹

MAN-Nr. 2-7530

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,75-2,95)

mm (from BDCCy1. 6; RW = 9,0-12.0 mm

	, .	570-25007		- 	1, 5,0 12,0	
Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
750	12.5+0.5	23.8-24.0	0,5(0,9)	<u> </u>		
250	5,2-5,4	1,2-1,8	0,8(1,2)			
-						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG che	Control rod travel	Full-load s Setting po rev/min 3	•	-	rev/min	fdle sper Setting p rev/min 7	Control rod travel		cifications 5 Control rod travel mm	Torque of rev/min	Control rod (3)
600 VH=	19,2-20.8 max.46°	600	20,0		1145-1160 1180-1210 0-1,0	250	5,3	250	min.6,8 5,2-5,4 55=2,0	750 100 935 990	12,5-12,6 11,3-11,4 12,4-12,6 11,7-12,0

Torque-control travel on flyweight assembly dimension a =

0,65 mm

Speed regulation: At 145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting f	
rev/min 1	cm ³ /-1000 strokes 2	rev/min	rev/min	cm³/-1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes / mm
LDA 1100	1,0 bar 238,0-240,0 (235,0-243,0) 1,0 bar 213,0-219,0 (210,0-222,0)	-	LDA 650 LDA 500	1,0 bar 239,0-245,0 (236,0-248,0) 0 bar 139,0-141,0 (136,0-144,0)		225,0-245,0 221,0-249,0)

Checking values in brackets

11,85

-2-

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement Gauge pressure = bar	diminution Control rod travel difference mm (1)
	Gauge pressure = bar	Gauge pressure - Dar	mm (1) .
PES 6 P LS 470 +RQ PA 658-9	1,0	0 0,10 0,40	12,5-12,6 9,3-9,4 9,6-9,7 11,0-11,4

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel injection Pumps (2) and Governors

WPP 001/4 MAN 11.9 a

5. Edition

PES6 P 120 A 720 LS 470 Komb.-Nr. 0 402 046 288 RQ 250/1100 PA 684

supersedes4.85

company: MAN

Values only apply to test nozzle-and-holder assembly

D 2866 KF 265 kW/2200 min⁻¹

1 688 901 019 and fuel-injection test tubing 1 680 750 067

MAN-Nr. 2-7355

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC) Cyl. 6; RW = 9.0-12.0 mm

		(2,73-2,33)	2,73-2,337								
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm					
750	12,5+0,1	23,8-24,0	0,5(0,9)								
250	5,2-5,4	1,2-1,8	0,8(1,2)								

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider	Full-load s	•	-	cifications (4)	ldle spe	•		cifications (5)	Torque o	control (3)
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel rnm	rov/min 6	rev/min 7	Control red travel mm 8	rev/min 9	Control rod travel mm	rev/min 11	Control rod Cravel
	19,2-20,8 = max. 46°	600	20,0	10,3 4,0 1300			5,3	250	min.6,8 5,2-5,4 355 = 2,0	1100	12, -12, 11,3-11,4 12,4-12,6 11,7-12,0
Torque-c	ontrol travel		0,4	5			1	145-11	60 min-1		1 mm less contro

Torque-control travel on flyweight assembly dimension a = 0,45 _{mm}

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on contro! lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting f	uel delivery d Contro:
rev/min 1	cm³/-1000 strokes	rev/min 3	rev/min	cm ³ /-1000 strokes	rev/min 6	cm ³ /1000 strokes/ mm
LDA 750 LDA 1100	1,0 bar 238,0-240,0 (235,0-243,0) 1,0 bar 214,0-218,0 (211,0-221,0)	-	LDA 650 LDA 500 LDA 500	1,0 bar 239,0-245,0 (236,0-248,0) 0,4 bar 188,0-200,0 (185,0-203,0) 0 bar 139,0-141,0 (136,0-144,0)	100	225,0-245,0 (221,0-249,0)

Checking values in brackets

. 11.85

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Test at n = fev/min decreasing pressure - in bar gauge pressure

MAN 11,9 a

- 2 -

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure =	bar Gauge pressure =	bar mm (1)
PE6PLS470 + RQPA684	1,0	0 0,12 0,40	12,5 - 12,6 9,3 - 9,4 9,6 - 9,7 11,0 - 11,4

Notes

(1) when n ≈

rev/min and gauge pressure ≈ bar (= maximum full-load control rod travel)

E14

En

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MAN 11,9 a 2

2. Edition

PES 6 P 120 A 720 LS -70-1

RQ 250/1100 PA 679

supersedes 12.83

Komb.-Nr. 0 402 046 289

company: MAN

D 2866 KUL

Values only apply to test nozzle-and-holder assembly

engine:

1 688 901 019 and fuel-injection test tubing 1 680 750 067

265 kW/2200 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2 75-2 95)

mm (from BDC)

Cyl. 6; RW = 9.0-12.0 mm

		<u> </u>		_	,	,
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
750	12.7+0.1	23.0-23.2	0,5(0,9)			
250	5,6-5,8	1,2-1,8	0,8(1,2)			•

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	Control rod travel	Full-load Setting po rev/min			cifications (4)	Idle spe Setting (rev/min	Control rod travel		ecifications Control rod Itravel	Torque	Control rod (3)
600 VH= n	19,2-20,8 lax. 46°	600	20,0	10,9 4,0 1350			5,5	250	min.7,2 5,6-5,8 380=2,0	750 1100 965 1010	13,0-13,1 11,9-12,0 12,6-12,8 12,1-12,4
	Catrol travel	·	0.4						<u> </u>		

Torque-control travel on flyweight assembly dimension a =

1145-1160 min

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor o	delivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting f	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min 6	Control red travel cm ³ /1000 strokes:/ mm
LDA 750	1,0 bar 230,0-232,0 (227,0-235,0)	-	LDA 500	0.4 bar 179,0-181,0 (176,0-194,0)	100	225,0-245,0 (221,0-249,0)
LDA 1100	1,0 bar 218,0-224,0 (215,0-227,0)		LDA 500	0 bar 128,0-130,0 (125,0-133,0)	250	12,0-18,0 (9,0-21,0)
	(111)					

Checking values in brackets

11.85

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MAN 11,9 a 2

-2-

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 PLS 470-1 +RQPA 679	1,0	0 0,13 0,40	12,7-12,8 9,4-9,5 9,7-9,8 11,1-11,5

Notes.

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

E16

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MAN 11,9a3 2. Edition

PES 6 P 120 A 720 LS 470-1 Komb.-Nr. 0 402 046 296

ROV 250-1100 PA 707

supersede 6 . 84

 $_{\text{company};} \, \text{MAN}$

engine:

D 2866 KUL

265 kW/2200 min⁻¹

1 688 901 019 and fuel-injection test tubing 1 680 750 067

MAN-Nr. 2-7512

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Values only apply to test nozzle-and-holder assembly

A. Fuel Injection Pump Settings

Rotational speed	Control rod	2.75-2.95)	Difference	Control rod	9,0 - 12,0 mm	Spring pre-tensioning
rev/min 1	travel mm 2	crn ³ /100 strokes 3	cm³/ 100 strokes 4	travel mm 2	cm ³ /100 strokes 3	(torque-control valve) mm 6
750	12,7+0,1	23,0-23,2	0,5 (0,9)			
250	5,4-5,6	1,2-1,8	0,8 (1,2)			
	,					•

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed		Intermediate	rated sp	eed	Lower rated	speed		Stiding	sleeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm (28)	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	1
1	2	3	4	5	6	7	8	9	10	mm 11
max.	1120	15,2 -17,8	_	-	-	ca. 11	100	min. 7,0	3 00	1,7-2,0
ca. 65	10,9	1140-1150					250	5,4-5,6	850	6,0-6,2
	4,0	1225-1255					365-	425=2,0	1100	8,3
	1350	0 - 1,0								
		0.4				(3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Imitation high idle speed (5)		Starting Idle switchin	fuel delivery 6	Torque travel	Control cod	
rev/min	cm³/1000 strokes	rev/min 48	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
 '	ļ č	3	4	5	6	7	8	9
LDA 750	1,0 bar 230,0-232,0 (227,0-235,0	1140-1160*	LDA 650	1,0 bar 231,0 -237,0 (228,0-240,0		225,0 -245,0 (221,0 -249,0	750) 1 100 935	12,7+0, 11,9+0, 12,5+0,
LDA 1100	1,0 bar 218,0-224,0 (215,0-227,0)		LDA 500	0 bar 128,0-130,0 (125,0-133,0)			1010	12,0+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

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MAN 11,9a3

-2-

Test	at	n	=

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governoi	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P. LS 470-1	1,0		12,7 - 12,8
+ RQV. PA 707		0	9,4 - 9,5
		0,40	11,2 - 11,3
		0,19	9,9 - 10,3
			·

Notes:

(1) when n =

rev/min and gauge pressure =

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

WPP 001/4 MAN 11,9 a 7 1. Edition

supersedes -

MAN company:

D 2866 KF/K engine:

265,0 kW

PES 6 P 120 A 720/3 LS 470-2 RQ 250/1100 PA 684

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Komb.-Nr. 0 402 036 050

2,8-2,9 Port closing at prestroke mm (from BDC) Cy1. 6; RW = 9.0-12.0 mm(2,75-2,95)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,5+0,1	23,8 - 24,0	0,5 (0,9)			
250	5,2-5,4	1,2 - 1,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che rev/min 1	Control rod	Full-load setting por rev/min 3		_	rev/min	Idle spec Setting p rev/min 7	Control rod travel		cifications 5 Control rod travel mm		Control rod (3) travel mm 12
<u>600</u> Vн	19,2-20,8 = max. 46°		20,0	10,3 4,0 1300	1145-1160 1180-1210 0 - 1,0	250	-	250	nin. 6,8 5,2-5,4 355=2,0	1100 935	12,7-12,8 11,3-11,4 12,4-12,6 11,7-12,0

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel deliv	ery characteristics	Starting I	luel delivery
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Control rod travel cm ³ /1000 strokes / mm
LDA 750	1,0 bar 238,0 - 240,0 (235,0 - 243,0)		LDA 650	1,0 bar 239,0 - 245,0 (236,0 - 248,0)		225,0 - 245,0 221,0 - 249,0)
LDA 1100	1,0 bar 214,0 - 218,0 (211,0 - 221,0)		LDA 500 LDA 500	0,4 bar 188,0-200,0 (185,0 - 203,0) 0 bar 139,0 - 141,0	250	12,0 - 18,0 (9,0 - 21,0)

ecking values in brackets

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 PLS 470-2 RQ PA 684	1,0	0 0,12 0,40	12,5 - 12,6 9,3 - 9,4 9,6 - 9,7 11,0 - 11,4

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

MAN 11,9 a 7

Test Specifications Fuel Injection Pumps 1 and Governors

1. Edition

PES 6 P 120 A 720/3 LS 470-2 RQV 250-1100 PA 700 Komb.-Nr. 0 402 036 051

supersedes -

company: MAN engine

D 2866 KF/K

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

265,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
2,8-2,9
Port closing at prestroke
(2,75-2,95) mm (from BDC)

Cyl. 6; RW = 9.0-12.0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm 6
750	12,5+0,1	23,8-24,0	0,5 (0,9)	2	<u> </u>	
250	5,2-5,4	1,2-1,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated :	speed		Intermediat	s rated sp	eed	Lower rated	speed	•	Slidina s	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1130	15,2-17,	8 -	-	-	ca. 10	100 250	min. 6,8 5,2-5,4	300 850	1,7-2,0 6,0-6,2
ca. 62		1140-1150 1225-1255 0 - 1,0							1100	8,3
						(3a)		i		

Torque control travel a = 1, 15

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil ten	d stop	Rotational-speed (2b) limitation intermediate speed	Fuel delic high idle s	very characteristics (5a) speed (5b)	Starting fuel delivery 6 Idle switching point		Torque- travel	Control rod	
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	rev/min cm³/1000 strokes		travel mm	
1	2	3	4	5	6	7	8	9	
LDA	1,0 bar		LDA	1,0 bar	100	225,0-245,0	750	12,5+0,	
750	238,0-240,0		650	239,0-245,0	i .	(221,0-249,0)	1100	11,3+0,	
	(235, 0-243, 0)		i	(236,0-248,0)	j				
LDA	1,0 bar		LDA	0,4 bar	250	12,0-18,0	T .	12,1+0,	
1100	213,0-219,0		500	191,0-197,0	[(9,0-21,0)	1000	11,5+0,	
	(210,0-222,0)			(188,0-200,0	}				
			LDA	0 bar	j				
			500	139 0-141 0	<u> </u>		L	L	

Checking values in brackets

(136,0-144,0)

* 1 mm less control rod travel than col. 2

MAN 11,9 a 8 - 2 -

Testatn =

500

rev/min decreasing pressure – in bar gauge pressure increasing

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 P LS 470-2 + RQV PA 700	1,0	0 0,40 0,24	12,5-12,6 9,3-9,4 11,1-11,2 10,2-10,6

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MAN 11.9 a 9

1. Edition

PES 6 P 120 A 720/3 LS 470-3 RQ 250/1100 PA 679 Komb.-Nr. 0 402 036 047

supersedes -MAN

D 2866 KUL

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067 265,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Difference cm ³ /	Control rod	Fuel delivery	Savina ara tanaisasina
100 strokes 4	mm 2.	cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
0,5 (0,9)			·
0,8 (1,2)			
			:
	0,5 (0,9)		4 2. 3 0,5 (0,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	ng of slider eck Control rod	Full-load Setting p	-	•	cifications (4)	Idle spec	•		cifications 5	Torque (Control rod
rev/min	travel mm 2	rev/min 3	rod travel mm 4	rod travel mm 5	rev/min 6	rev/min 7	red travel	rev/min 9	travel	rev/min 11	travel
600 VH =	19,2-20,8 max. 46°	600	20,0		1145-1160 1185-1215 0 - 1,0	250	5,7	100 250 340-	380 = 2,0	1100 965	13,0-13,1 11,9-12,0 12,6-12,8 12,1-12,4

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	rery characteristics	Starting Idle spec	. •
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes	rev/min	Control rad travel cm ³ /1000 strokes:/ mm 7
LDA 750	1,0 bar 230,0 - 232,0 (227,0 - 235,0)		LDA 650	1,0 bar 231,0 - 237,0 (228,0 - 240,0)	100	225,0 - 245,0 (221,0 - 249,0)
LDA 1100	1,0 bar 218,0 - 224,0 (215,0 - 227,0)		LDA 500	0,4 bar 179,0 - 191,0 (176,0 - 194,0)	250	12,0 - 18,0 (9,0 - 21,0)
No. 11		`	LDA 500	0 bar 128,0 - 130,0 (125,0 - 133,0)		

Checking values in brackets

rev/min decreasing pressure – in bar gauge pressure Testatn = 500 diminution Measurement Pump/governor Setting difference bar (1) Gauge pressure = Gauge pressure ≃ 12,7 - 12,8 9,4 - 9,5 9,7 - 9,8 11,1 - 11,5 PES 6 P..LS 470-3 + RQ..PA 679 1,0 0,13 0,40

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

MAN 11,9 a 9

2

Testoil-ISO 411

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 MAN 11,4 f 2. Edition

<u>En</u>

PES 6 P 100 A 720 LS 471 Komb.-Nr. 0 402 046 287

RQ 250/1100 PA 685

supersede 8.84 company: MAN

Company: 1

D 2566 UH/200 147 kW/2200 min⁻¹

MAN-Nr. 2-7454

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,05-3,25)

mm (from BD&) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery . cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,3+0,	9,4-9,6	0,35(0,6)			
250	4,9-5,1	1,2-1,8	0,35(0,55)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che		Full-load : Setting po	•	•	cifications (4)	ldle spec	•		cifications (5)	Torque o	control 3
rev/min 1	Control rod travet mm 2	rev/min 3	Controt rod travel mm 4	Control red travel mm 5	rev/min 6	rev/min	Control rod travel	rev/min 9	Control rod	rev/min 11	Control rod travei mm 12
600	15,6-16,4	600	16,0		1145-1160 1215-1245 0-1,0	250	3	250	min.6,5 4,9-5,1 1 80=2,0		12,4-12,5 12,3-12,5

Torque-control travel on flyweight assembly dimension a =

1145-1160 min

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	2	Control rod stop 3a	Fuel delive	ery characteristics	Starting I	duel delivery ed Control
-ev/min	cm³/-1000 strokes 2		rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min	cm ³ /1000 strokes:/ mm
750	94,0-96,0 (92,0-98,0)		-	500 1100	85,0-88,0 (82,5-90,5) 100,0-104,0 (97,5-106,5)	100	115,0-135,0 (111,0-139,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MAN 11,9 a 11

1. Edition

Er

PES 6 P 120 A 720/3 LS 470-3 RQV 250-1100 PA 707 KOMb.-Nr. 0 402 036 048

supersedes -

company: MAN

Values only apply to test nozzle-and-holder assembly engine 1 688 901 019 and fuel-injection test tubing 1 680 750 067

D 2866 KUL 265,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8-2,9 (2,75-2,95) mm (from BDC) Cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,7+0,1	23,0-23,2	0,5 (0,9)			
250	5,4-5,6	1,2-1,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed	•		Intermediate	rated sp	eed	Lower rated	speed		Sliding	leeve travel
deflection	rev/min Control rod travel mm 2	mm .	1a 2a	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3	rev/min	mm
max.	1130	15,2-17	,8	_	-	- (ca. 11	100	nin. 7,0	300	,7-2,0
ca. 65		1140-1150 1225-1255 0 - 1,0								850 (1100	,0-6,2 8,3
		·					(3a)				

Torque control travel a = 0,40 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil ten		Rotational-speed (2b) limitation intermediate speed	Fuel deliv	very characteristics 5a speed 5b	Starting Idle switchir	,)	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 750	1,0 bar 230,0-232,0 (227,0-235,0)		LDA 650	1,0 bar 231,0-237,0 (228,0-240,0)	100	225,0-245,0 (225,0-245,0)		12,7+0,1 11,9+0,1
1100	1,0 bar 218,0-224,0 (215,0-227,0)		LDA 500	0,4 bar 182,0-188,0 (179,0-191,0)	250	12,0-18,0 (9,0-21,0)		12,5+0,2 12,0+0,3
			LDA 500	0 bar 128 0-130 0				

Checking values in brackets

(125,0-133,0)

1 mm less control rod travel than col. 2

10.85

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung C by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany Imprime en Republique Fédérale d'Allemagne par Robert Bosch GmbH.

7est at n =

500

rev/min decreasing pressure – in bar gauge pressure

MAN 11,9 a 11 - 2 -

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6P.LS470-3 + RQV PA 707	1,0	0 0,40 0,19	12,7-12,8 9,4-9,5 11,2-11,3 9,9-10,3

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MAN 11.9 a 12

1. Edition

PES 6 P 120 A 720/3/8 470-3 Komb.-Nr. 0 402 036 053

ROV 300-1100 PA 707-1

supersedes " MAN company

engine

D 2866 LUL 243,0 kW

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

MAN-Nr. 2-7738

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Cy1. 6

		(2,75-2,55)				
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fue! delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
750	11,4+0,1	20,7-20,9	0,5 (0,9)		-	
300	4,9-5,1	1,2-1,8	0,8 (1,2)			
				:		

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated :	speed		Intermediat	e rated sp	eed	Lower rated	speed		Cliding	lague travel
deflection	rev/min Control rod travel mm 2	Control rod (18 travel mm rev/min 21	of control	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm
max. ca. 64	1130 10,4 4,0 1350	15,2-17,8 1140-1150 1225-1255 0 - 1,0	:	-	-	ca. 12	300	min.6,5 4,9-5,1 440 = 2,0	850	,7-2,0 6,0-6,3 8,2

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil te		Rotational-speed 2b limitation intermediate speed	Fuel deli high idle s	very characteristics 5a	Idle	fuel delivery 6	Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 40	rev/min	cm ³ /1000 strokes	rev/min	ciก³/1000 strokes	rev/min	travei mm
1	2	3	4	5	6	7	8	9
LDA 750	1,0 bar 207,0-209,0 (204,0-212,0)	1140-1150 *	LDA 1100 LDA 500 LDA 500	1,0 bar 216,0-222,0 (213,0-225,0 0,44 bar 181,0-191,0 (178,0-194,0 0 bar 130.0-132.0)	225,0-245,0 221,0-249,0)		

Checking values in brackets

(127,0-135,0)

* 1 mm less control rod travel than col 2

MAN 11,9 a 12 - 2 -

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6PLS 470-3 + RQVPA 707-1	1,0	0 0,23 0,44	11,4-11,5 9,0-9,1 9,3-9,4 10,6-10,9

Notes.

(1) when n =

rev/min and gauge pressure =

2

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 MAN 11,4 g 2. Edition

En

PES 6 P 110 A 720 LS 477 RQ 250/1100 PA 685 Komb.-Nr. 0 402 046 304

supersedes 7 • 84 MAN company:

engine:

D 2866 UH/240 177 kW/2200 min -1

MAN-Nr. 2-7539

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,45-3,65)

mm (from BDC)

Cy1. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
800 250		12,3-12,6	0,4 (0,75 0,45(0,75			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	(1)	Full-load : Setting po	•	-	cifications (4)	Idle spec	_		cifications (5)	Torque (control (3)
rev/min	Control rod travel mm 2	rev/min 3	Control rod travel mm	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel rnm 8	rev/min 9	Control rod	rev/min	Control rod (travel)
600	15,6-16,4	600	16,0	10,7 4,0 1350	1145-1160 1210-1240 U-1,0	250	6,1	250	min.7,6 6,0-6,2 410=2,0	1100 500	11,7-11,8 11,7-11,9

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At 145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever mp. 40°C (104°F)	Control rod stop (3a)	Fuel deliv	ery characteristics	Starting f	uel delivery d 1 Control
rev/min	cm³/~1000 strokes 2	rev/min 3	rev/min	cm³/-1000 strokes 5	rev/min 6	rod travel cm ³ /1000 strokes / mm 7
800	123,0-126,0 (120,5-128,5)		1100 500	127,0-133,0 (124,0-136,0) 113,0-119,0 (110,0-122,0)	100 250	110,0-130,0 (106,0-134,0) 15,0-20,0 (12,5-22,5)

Checking values in brackets

Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 MAN 11,4 g 1 1. Edition

Ën

PES 6 P 110 720 LS 477 RQ 250/1100 PA 685-1 Komb.-Nr. 0 402 046 310 supersedes

company MAN

engine D 2566 UH/200 147,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,45-3,65)

mm (from BDC)

Cy1. 6

	· · · · · · · ·	, , , , , , , , , , , , , , , , ,				
Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm³/300 strokes	Spring pre-tensioning (torque-control valve
1	2	3	4	2	3	6
800	10,5+0,1	9,1 - 9,4	0,4 (0,75)		
250	6,0-6,2	1,5-2,0	0,45(0,75)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider	Full-load :		-	cifications (4)	Idle spec	•			Torque	control	
rev/min	Control rod travel		Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod trav el	rev/min	cilications (5) Control rod travel mm 10	rev/min	Control rod travel mm 12	(3)
600	15,6-16,4	600	16,0	9,5 4,0 1300	1145-1160 1200-1230 0 - 1,0		6,1		min. 7,6 6,0-6,2 10 = 2.0	1100 500	10,7-10 10,7-10	,8 ,9

Torque-control travel on flyweight assembly dimension a =

mm

1145-1160 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting f	. —
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes	rev/min	Control rod travel cm ³ /1G00 strokes/ mm
800	91,0-94,0 (88,5-96,5)		1100	103,0-107,0 (100,0-110,0)	100	110,0-130,0 (106,0-134,0)
			500	81,0-85,0 (78,0-88,0)		

Checking values in brackets

10.85

BOSCH

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MAN 11,9 b

1. Edition

PES 6 P 110 A 720 LS 477-1 Komb.-Nr. 0 402 046 325

ROV 300-1100 PA 667-1

supersedes companyMAN D 2866 E 177,0 kW

MAN-Nr. 2-7681

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Cyl. 6; RW = 9,0-12,0 mmPort closing at prestroke (3.45 - 3.65)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	12,2+0,1	12,3-12,6	0,4 (0,75)		
300	5,6-5,8	1,5-2,0	0,45(0,75)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed	•	Intermediat	e rated sp	eed	Lower rated	speed		Cliding	legue traval
deflection	rev/min Control rod travel mm 2	Control rod travel mm rev/min 2a	of control	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
max.	1180 11,2 4,0 1400	1195-1225	-	-		ca.17 330-43	100 300 5	min.7,2 5,6-5,8		1,2-1,4 3,3-3,6 5,9-6,6 7,6
When the size of the latest and the size of the size o	1400	0-1,0				(3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed			Starting Idle switching	.)	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 48	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travei mm
800	123,0-126,0 (120,5-128,5		1100	128,0-132,0 (125,0-135,0)	100	110,0-130,0 (106,0-134,0		<u>9</u> -
			500	118,0-122,0 (115,0-125,0)	300	15,0-20,0 (12,5-22,5)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

~ ***

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MAN 11.9 c

1. Edition

PES 6 P 120 A 720 RS 487

RQV 400-1050 PA 750

supersedes

Komb.-Nr. 0 402 046 314

companyMAN

engine D 2865 LUE

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

250,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(2,75-2,95)	mm (from BDC)			
Rotational speed	Control rod travei	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-terisioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm 6
4050	40.40.4	10 1 10 1		 	13	
1050	10,4+0,1	19,4-19,6	0, 5(0,9)			
400	4,4-4,6	1,2-1,8	0,8(1,2)			
	ŀ					
		i		1	1	i

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	ned	Lower rated	speed		Stidings	leeve travel
deflection of control	rev/min Control rod travel	Control rod (18) travel mm	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Shoring s	1
lever	mm	rev/min (2a)	lever	1_	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1080	15,2-17,8	-	-	-	ca. 18	100	min.7,5	375	1,1-1,3
ca. 54	9,4	1090-1100						4,2-4,4	800	4,6-4,9
		1135-1165 0-1,0				415-515			1050	7,8
						(3a)				

Torque control travel a =

C. Settings for Fuei injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed (2b) limitation intermediate speed	Fuel delic high idle s	very characteristics 5a	Starting Idle switchir		Torque- travel	control 5
rev/min	cm ³ /1000 strokes	rev/min 48	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
LDA 1050	1,0 bar 194,0-196,0 (191,0-199,0)	1090-1100*	LDA 700 LDA 500 LDA	1,0 bar 178,0-184,0 (175,0-187,0) 1,0 bar 171,0-177,0 (168,0-180,0) 0 bar	400	225,0-245,0 (221,0-249,0) 12,0-18,0 (9,0-21,0)	-	-

Checking values in brackets

(136,0-144,0)

* 1 mm less control rod travel than col. 2

MAN 11,9 c

. 2 -

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 PRS 487 + RQVPA 750	1,0	0 0,30 0,36	10,4-10,5 9,3-9,4 9,6-9,7 10,0-10,2

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 9,6 k

Edition

PE 6 P 100 A 320 LS 805

1100 PA 440 R

supersedes 2.82

Komb.-Nr. 0 401 846 408

company: Daimler-Benz

OM 401

116 kW (158 PS)

6 - 3 - 5 - 2 - 4 - 1 $^{+}0,50^{\circ}$ $0 - 45 - 120 - 165 - 240 - 285^{\circ}$ $(^{+}0,75^{\circ})$

Control rod travel

10,4

+0,1

7,8-8,0

mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Rotational speed

rev/min

1050

350

(3,35-3,55)

Fuel delivery

cm³/100 strokes

2,3 -

2,8

10,0 - 10,2

mm (from BDC) Cyl. 6

0,3(0,5)

mm (nom 60C)			
Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
100 strokes	mm	cm³/100 strokes	mm
4	2	3	6
0,3(0,6)			

Adjust the fuel delivery from each cuttet according to the values in F

B. Governor Settings

Upper rated	speed		Intermediat	e rated sp	eed	Lower rated	speed		Sliding	leeve travel
Degree of deflection of control lever	rod travel	mm	Degree of deflection of control lever	rev/min 5	Control sud travel mm 4	Degree of deflection of control tever 7	rev/miñ 8	Control rod travel mm 3		
•	9,4 4,2 1300	1120-112 1160-117 0 - 1		-	-	30		-	-	-

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil te		Rotational-speed 2b limitation intermediate speed	Fuel delivery characteristics (5a) shigh idle speed (5b)			fuel delivery 6	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3 ·	4	5	6	7	8	9
1050	100, 0-102, 0 (98, 0-104, 0)	1120-1125*	-	-	100	110,0-130,0	-	-
				dis	1165 persio	4,2 mm RM n max.4 (6)		
						l		

Checking values in brackets

* 1 mm less control rod travel than cot. 2



Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 12.8 b 3

2. Edition

PE 8 P 100 A 320 LS 810 ROV 300-1250 PA 227 R

supersedes9.84

Komb.-Nr. 0 401 848 041

company: Daimler-Benz OM 402

 $1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 \text{ je } 45^{\circ} \div 0.5^{\circ} (\div 0.75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	itroke	3,4-3,5 (3.35-3.55)	·						
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travet mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6			
1250	10,3+0,1	10,0-10,2	0,3(0,6)						
300	7,4-7,6	1,7-2,3	0,3(0,5)						
600	-	C, Sp. 4 u. 5	0,5(0,7)						

Adjust the fuel delivery from each outlet according to the values in a

mm

B. Governor Settings

Upper rated s	peed		Intermedia	te rated sp	eed	Lower rated	speed		Sliding sleeve travel	
deflection	rev/min Control rod travel mm 2	Control rod travel mm rev/min 2	of control	rev/min	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min	Control rod travel mm 3	rev/min	mm
max.	1290	15,2-17,8	-	-	-	ca. 12	100	min.9,0	250	0,7-1,0
ca. 66	9,3 4,0 1450	1330-1360	1			300 – 600		 7,4-7,6	,	3,3-3,5 4,7-5,1 8,0
						3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteriatics 5a	Starting Idle switchir	.)	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 48	rev/min cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1250	100,0-102,0 (98,0-104,0)	1290-1300*	600	75,0-80,0 (72,5-82,5)	100	120,0-140,0 (116,0-144,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung © by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50. Printed in the Federal Republic of Germany. Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

2

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 MAN 20,9 e 3

1. Edition

PE 12 P 110 A 520 LS 838-1 Komb.-Nr. 0 401 840 098 RQ 900 PA 663-6

company MAN

engine D 2542 MTE

1-5-9-8-3-4-11-10-2-6-7-12

 $0-15-60-75-120-135-180-195-240-255-300-315^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke (2,95-3,15)	mm (from BDC)		Cyl. 12	
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
850	11.4+0.1	15.6-15.9	0,4(0,75			
250	3,8-4,0	1,4-1,9	0,45(0,7)		
	İ					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider eck	~ ;	load sp		gulation Test spec	cifications (4)	Idle speed regulation Setting point Test specifications (5)				Torque control		
rev/min	Control rod travel mm 2	rev/i	ļ,	red travel	Control red travel mm 5	rev/min	rev/min 7	Control rod travel rmm 8		Control rod travel	rev/min 11	Control rod (3) travel mm 12	
-	-		-	~	10,4 4,0 1000	900-905 932-946 0-1,0	•	-	•	1	•	•	

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At

900-905 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	36)	Starting f	. —
rev/min 1	cm³/-1000 strokes	rev/min 3	rev/min 4	cm³/-1000 strokes		rev/min	Control red travel cm ³ /1000 strokes/mm 7
850	156,0-159,0 (153,0-161,5)	-	-	-		-	-

Checking values in brackets

10.85

BOSCH

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MAN 17,4 a 5

2. Edition

PE 10 P 110 A 520/5 LS 846

ROV 250-1150 PA 673-1

supersedes 1.84 MAN

Komb.-Nr. 0 401 849 183

①

1-8-7-6-3-5-2-10-9-4

D 2540 MTF

 $0-27-72-99-144-171-216-243-288-315^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

 $310 \text{ kW}/2300 \text{ min}^{-1}$ MAN-Nr. 2-7372

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(2.95-3.15)	mm (from BDC)		Cyl. 10			
Rotational speed	Control rod travel	Fuel dalivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)		
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm/3/100 strokes	mm 6		
1150	11,5+0,1	13,2-13,5	0,4(0,75)					
250	7,0-7,2	1,1-1,6	0,45(0,75)				
	ļ							
	ĺ	i		İ				

Adjust the fuel delivery from each outlet according to the values in F

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed		Lower rated	speed		Stidings	leeve travel
deflection of control	rev/min Control rod travel mm	Control rod travel mm rev/min 28	Degree of deflection of control lever	1_	Control re travel	od (4)	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm
1	2	3	4	5	6		7	8	9	10	11
max.	1170	15,2-17,8	-	-	-		ca. 12	100	min.8,6	350	2,0-2,5
ca. 65	10,5 4,0 1450	1315-1345	•						17,0-7,2 460=2,0	850 1150	6,5-6,7 8,4
							(3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed (2b) limitation intermediate speed			Starting Idle switchir	\cup	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 4a	røv/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	в	7	в	9
LDA 1150	0,9 bar 132,0-135,0 (129,5-137,5		LDA 750	0,9 bar 122,0-126,0 (119,0-129,0		150,0-170,0 (146,0-174,0		-
			LDA 500	0 bar 115,0-118,0 (112,5-120,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

MAN 17,4 a 5

-2-

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 10 P LS 846 +RQV PA 673-1	0,90	0 0,32	11,5-11,6 11,1-11,2 11,3-11,4

Notes

(1) when n =

rev/min and gauge pressure =

② Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 17,4 b 9

2. Edition

En

PE 10 P 120 A 520/5 LS 850-1

RQ 750 PA 663-3

supersedes 11.84 company MAN

1-8-7-6-3-5-2-10-9-4

 $0-27-72-99-144-171-216-243-288-315^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$ Values only apply to test nozzle-and-holder assembly

engine D 2540 MLE 283 kW/1500 min⁻¹ Komb.-Nr. 0 401 849 174

values only apply to test nozzle-and-noider assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

MAN-Nr. 2-7247

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.95-3.15)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes	mm 6
700	11,9+0,1	19,5-19,7	0,5(0,9)			
250	4,4-4,6	1,4-2,0	0,8(1,2)			
		-				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ck	1	Full-load s		-	cifications (4)	Idle spec			cifications (5)	Torque o	control (3)
rev/min 1	Control rod travel mm 2		rev/min 3	Control rod travel mm 4	Control red travel mm 5	rev/min 6	rev/min 7	Control rod travel	rev/min 9	Control rod travel	rev/min	Control rod (
-	-		-		10,9 4,0 950	750-755 776-789 0 - 1,0	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a =

mm

750-755 min

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop (3a)	Fuel deliv	ery characteristics	<u>3b</u>	Starting f	. •
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	!	rev/min 6	Control red travel cm ³ /1000 strokes / mm
700	195,0-197,0 (192,0-200,0)	•	-	-		-	-

Checking values in brackets

11.85

BOSCH

Jestoli 150 4113

WPP 001/4 MAN 14,5 a 1

1. Edition

Er

PE 8 P 110 A 520 LS 851 Komb.-Nr. 0 401 848 083

RQV 250-1150 PA 670-3

companyMAN
engine D 2848 T 245,0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2.95-3.15) mm (from BDC

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1150	10,8+0,1	14,3-14,5	0,4(0,75)			
250	4,9-5,1	1,8-2,4	0,45(0,75)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed	1	Intermediate	e rated sp	eed	Lower rated	speed		Stidings	leeve travel
deflection of control	rev/min Control rod travel mm 2	Control rod travel mm rev/min (26	of control	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm
max. ca. 62	9,8 4,0 1450	15,2-17,8 1190-120 1270-130 0-1,0	0 0	-	-	ca. 9 280-390	100 250	min.6,5 4,9-5,1	250 450	1,1-1,3 2,9-3,3 5,7-6,1 7,8
						(3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten		Rotational-speed 2b limitation intermediate speed			Starting Idle switchir	. •	Torque- travel	Control 5	
rev/min	cfh³/1000 strokes .	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm	
1	2	3	4	5	6	7	8	9	
LDA 1150	1,0 bar 143,0-145,0 (140,5-147,5)	1190-1200*	LDA 700	1,0 bar 140,0-144,0 (137,0-147,0		190,0-210,0 186,0-214,0)	-	-	
			LDA 500	0 bar 108,0-110,0 (105,5-112,5					

Checking values in brackets

2 1 mm less control rod travel than col. 2

10.85

BOSCH

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MAN 14,5 a 1

- 2 -

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure ≃ bar	mm (1)
PE 8 PLS 851 + RQVPA 670-3	1,0	0 0,29 0,23	10,8-10,9 9,6-9,7 10,5-10,6 9,9-10,2

Notes:

(1) when n =

rev/min and gauge pressure =

2

mil.

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 MAN 14,5 a 2. Edition

En

PE 8 F 110 A 320 LS 851 RQ 250/1150 PA 688 Komb.-Nr. 0 401 848 082 1-8-7-2-6-3-5-4 je 45° ± 0,5° (± 0,75°)

supersede 12.84 company MAN D 2848 T

245 kW/2300 min⁻¹ MAN-Nr. 2-7353

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC) Cy1.8

		2,33-3,137		<u> </u>		
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,8+0,1	14,3-14,5	0,4(0,75)			
250	4,9-5,1	1,8-2,4	0,45(0,75)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking	g of slider	Full-toad :	speed re	gulation	_	Idle spec	ed regula	ition		Torque	control
	Control rod travel	Setting por rev/min 3	Control rod travel rnm	Test spec Control rod travel mm	rev/min	Setting prev/min	Control rod travel	Test spe rev/min 9	cifications 5 Control rod travel mm	rev/min	Control rod travel mm
600	19,2-20,8	600	20,0		1195-1210	250	5,0	100	min.6,5		10,8-10,9
VH =	max. 46°			4,0 1450	1280-1310 0-1,0			250 310-	4,9-5,1 350 = 2,0		10,8-11,0

Torque-control travel on flyweight assembly dimension a =

mm

1195-1210 min-1 Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting f	
rev/min 1	cm ³ /-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes	rev/min	Control rod trave cm ³ /1000 strokes / mm
LDA 1150	1,0 bar 143,0-145,0 (140,5-147,5)	-	LDA 700 LDA 500	1,0 bar 137,0-141,0 (134,0-144,0) 0 bar 108,0-110,0 (105,5-112,5)	100 250	185,0-205,0 (181,0-209,0) 18,0-24,0 (15,5-26,5)

Checking values in brackets

MAN 14,5 a

- 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE8PLS851 + RQPA688	1,0	0 0,29 0,23	10,8-10,9 9,7-9,8 10,5-10,6 9,9-10,1

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications 1 Fuel Injection Pumps 1 and Governors

WPP 001/4 FIA 13,8 i 1

2. Edition

PE 6 P 120 A 720 RS 3069

RQV 300-1200 PA 727

supersedes 3.85

Komb.-Nr. 9 400 087 309

company Fiat Diesel 8210.11

engine:

220 kW

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

RW = 9.0 - 12.0 mm

Rotational speed	Control rod	(3,45-3,55) Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning
rev/min 1	travel mm 2	cm³/100 strokes 3	cm³/ 100 strokes 4	travel mm 2	cm ³ /100 strokes	(torque-control valve) mm 6
1000	12,4+0,	1 20,1-20,3	0,5(0,9)			
300	6,0-6,	2 1,5-2,1	0,8(1,2)			
						1

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Stidings	Sliding sleeve travel	
deflection	rev/min Control	Control rod ta	Degree of deflection of control	:	Control rod travel	Degree of deflection		Control rod travel	0	①	
1	rod travel mm	rev/min (28)	lever	rev/min	mm (4)	of control lever	cev/min	mm (3)	rev/min	mm	
1	2	3	4	5	6	7	8	9	10	11	
max.	1045	15,2-17,8	~	_	-	ca. 10	1	min.7,6	325	1,2-1,4	
ca. 65		1040-1050 1115-1145	(-				300	6,0-6,2	450 800 1000	2,6-3,1 5,7-6,0 7,9	
! !	1250	0-1,0				350-45	•				
						3a					

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten	= - · · - •	p 0°C (104°F) 2 Imitation intermediate speed		very characteristics (5a)	Idle	fuel delivery (6)	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1000	0,7 bar 20 1 ,0-20 3, 0 (198,0-206,0		LDA 1000	0 bar 158,0-160,0 (155,0-163,0		175,0-195,0 (171,0-199,0		-

Checking values in brackets

* 1 mm less control rod travel than col. 2



D. Adjustment Test for Manifold Pressure Compensator Test at n = 500 rev/min decreasing pressure - in bar gauge pressure

FIA 13,8 i 1

-2-

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure ≈ bar	Control rod travel	difference
	Gauge pressure - Oai	Gauge pressure - Dar	(1)	
PE 6 PRS 3069 +RQVPA 727	0,70	0 0,36 0,31	12,4- 10,0- 11,6- 10,6-	·10,1 ·11,7

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DEE 10.1 b

2. Edition

En

US-PES 6P 110 A 720 RS 3086 US-RSV 400-1050 PO/492-1

supersedes4.85

Komb.-Nr. 9 400 231 174

John Deere

6619 A

Values apply to fuel-injection test tubing 9 681 271 004

215 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,40-3,60)

mm (from BDC)

Rotational speed	Control rod trave:	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning (torque control valve)
rev/min	mm (2)	cm ³ /100 strokes	cm ¹ / 100 strokes	mm	cm ¹ /100 strokes	mm
1	2	3	4	2	3	6
1050	13,9+0,1	21,4-21,6	0,4 (0,75			
400	6,0-6,2	1,9-2,5	0,45(0,75			
					ļ	
	}			1		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	t rev/min	Interme	diate rated	speed	(2)	Lower	rated speed	(3) 10	rque control
Degree of deflection	Control rod travel	Control rod travel				Control	1	Control rod travel		Control rod travel
of control	mm	nim rev/min				deflection in degrees	iev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 21	400	5,6	1050	13,9-14,0
	X =					}	400	6,0-6,2	700	14,3-14,6
ca. 42	12,9	1000 1100]				540-60	= 2,0		
	4.0	1090-1100 1185-1215						<u>.</u>	!	;
(2a)	1 ,	0,3-1,7					}		-	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		Rotational speed limitat	11.3411	uel delivery naracteristics	Starting Idle	fuel delivery 5	4a) Idle stop	
rev/min	emp 40°C (104°F) cm 1/1000 strokes 2	Note changed (o) rev/min 3	rev/min	cm ¹ /1000 strokes	rev/min	cm/1000 strokes	rev/min 8	Control rod travel mm
LDA 1050	1,0 bar 213,5-215,5 (210,5-213,5)	1090-1100*	LDA 700	1,0 bar 223,5-226,5 (220,0-230,0)	100	135,0-155,	0 400	6,1
			LDA 500	0 bar 136,5-139,5 (133,0-143,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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DEE 10,1 b

- 2 -

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (3) .
US-PES6PRS 3086 +RSV P0/492-1	0,47	0,26	14,1 - 14,2 12,9 - 13,3

Notes

(1) when n =

rev/min and gauge pressure =

Testoil-ISO 4113

WPP 001/4 MB 11,0 i 2

2. Edition

PE 6 P 110 A 320 LS 3805-10

ROV 300-1150 PA 524-6

supersedes 4.85

Komb.-Nr. 0 401 846 756

company: Daimler-Benz

1-6-3-5-2-4

OM 421

0-75-120-195-240-315° ± 0.5 ° (± 0.75 °)

148 kW (201 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings Port closing at prestroke (3.95-4.15)

mm (from BDC) Cy1. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod trayel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,6+0,1	12,7-12,9	0,4 (0,8)			
300	9,1-9,3	1,6-2,2	0,4 (0,7)			
600	-	C, Sp. 4 u. 5	0,6 (0,8)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated Degree of deflection of control lever	rev/min	Control rod (1a) travel mm rew/min (2a)	Intermediate Degree of deflection of control tever 4		Control rod travel mm 4	Lower rated Degree of deflection of control lever 7	C	ontrol rod avel		mm
max. ca. 55	11,6 4,0 1500	15,2-17,8 1190-1200 1240-1270 0 - 1,0		-	-	ca. 23	300 9	in.10,6 ,1-9,3) = 2,0	≘00 1200	1,6-1,8 5,8-6,2 8,2-8,4 10,0

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed (2b) limitation intermediate speed	Fuel delivery characteristics 5a high idle speed 5b		Starting Idle switchir	\mathbf{C}	Torque- travel	control (5)	
rev/min	cm³/1000 strokes	rev/min 4a	rev/min cm³/1000 strokes rev/min cm³/1000 strokes		rev/min	travel mm			
] 1	2	3	4	5	6	7	8	9	
1150	127,0-129,0 (124,0-132,0)		600	104,5-108,5 (101,5-111,5)		130,0-150,0 (126,0-154,0)	-	1 1	

Checking values in brackets

* 1 mm less control rod travel than col. 2 4 86.

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WPP 0C1/4 KHD 9,6 q 2. Edition

En

PES 6 P 110 A 720 RS 3104 Komb.-Nr. 0 402 046 761

RQV 300-1150 PA 549-2

supersedes 5.85

company: KHD

engine:

BF 6L 413 FRC

220 kW/2300 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

ort closing at pres	stroke	2,80-2,90 (2,75-2,95)	mm (from BDC)	RW =	9,0 - 12,0 m	nm
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1150	14,4+0,1	16,9-17,1	0,4(0,75)			
300	7,8-8,0	1,6-2,2	0,4(0,7)			
	,					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed		Intermediate	rated sp	eed	Lower rated	speed		Clidian	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod (1a) fravel mm rev/min (2a)	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	i i
<u>'</u>	2	3	4	5	6	7	8	9	10	11
max.	1225	15,2-17,8	-	-	-	ca. 2 6		min. 9,3		0,5-0,8
ca. 60		1190-1200 1315-1345					300	17,8-8 , 0		3,6-4,2 5,4-5,7 7,8
1 	1450	0 - 1,0				320-500			1100	,,0
						(3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotatione/:speed 2b limitatior intermediate speed		Fuel delivery characteristics (58) high idle speed (50)		Starting Idle switchir		Torque- travel	Control 5
rev/min 1	cm³/1000 strokes	rev/min 3	4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
LDA 1150	0,9 bar 169,0-171,0 (166,0-174,0)	1190-1200	*	LDA 600	0,9 bar 171,0-175,0 (168,0-178,0	100	135,0-155,0 (131,0-159,0)	-	-
				LDA 450	0 bar 123,0-125, (120,0-128,))			

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

D. Adjustment Test for Manifold Pressure Compensator

KHD 9,6 q

- 2 -

Test at n =

450

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution
			Control rod travet- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 PRS 3104 + RQVPA 549-2	0,90	0 0,5 0,36	14,4-14,5 12,5-12,6 13,9-14,0 12,7-12,9

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 MB 11,0 m 5. Edition

PE 6 P 110 A 320 LS 3814

RQV 350-1150 PA 378

supersedes 3.85

Komb.-Nr. 0 401 846 741

company: Daimler-Benz

1-6-3-5-2-4

OM 421

0-75-120-195-240-315° ± 0,5° (± 0,75°)

159 kW

Note VDT-I-401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3 05-4 15)

mm (from BDC)

Cvl. 6: RW = 9.0-12.0 mm

	,	(3,95-4,15)	min (non bbc)	.	· 0, kw - 5,0	12,0 11111
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery ¥ cm³/100 atrokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery * * cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1130	12,7+0,1	12,3-12,5	0,4(0,8)	12,7+0,1	13,4-13,6	
350	8,2-8,4	1,3-1,9	0,4(0,7)	8,2-8,4	1,3-1,9	
600 1 1 50	-	-	0,6(0,9)	-	C, Sp. 4 u.5	
* with ret	ırn throt	tle (1)	** withou	t return	throttle (2)	ļ

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed		Intermediate	e rated sp	eed	Lower rated	speed			
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min 2e	of control	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Sliding s	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	_	-	_	ca. 16		min _。 8,5	300	0,6-0,9
ca.66	11,7 4,0 1400	1180-1190 1285-1315 0-1,0				375-485		18,2 - 8,4	580 870 1150	3,6-3,7 5,2-5,3 7,6
						3 a				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten	elivery d stop np. 40°C (104°F) 2	Rotational-speed 2b limitation intermediate speed	Fuel deliv	Fuel delivery characteristics 5a high idle speed 5b		fuel delivery 6	Torque-control 5 travel Control ro	
rev/min 1	cm ³ /1000 strokes	rev/min 48	rev/min 4	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm 9
(1) 1130	123,0-125,0 (120,0-128,0)	1170-1180*	-	-	100	130,0-150,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

Upper rated :	speed			Intermediate	rated spe	ed	Lower rated	speed		Sliding sleeve travel	
Degree of deflection of control	rev/min Control rodtravel		(a)	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		0
lever	mm 2	rev/min 3	(2a)		rev/min 5	mm (4) lever	rev/min	mm (3) 9	rev/min	mm 11
max.	1150	15,2-17	,8	-	<u>-</u>	-	ca. 16	100	min.8,5	300	0,6-0,9
ca. 66	11,7	1180-11 1285-13						350	8,2-8,4	580 870	3,6-3,7 5,2-5,3
	1400	Ű-1,	-				375-485			1150	7,6
							(3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro- Test oil ter	d stop	Rotational-speed (2b) limitation intermediate speed	Fuel deliv	very characteristics (5a) speed (5b)	Starting Idle switching	<u>U</u> ,	Torque- travel	control 5
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel
1	2	3	4	5	6	7	8	9
(2) 1150	134,0-136,0 (131,5-138,5	1170-1180*	600	93,0-97,0 (90,0-100,0) 116,0-120,0 113,0-123,0)		140,0-160,0 (136,0-164,0		-

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than col 2

**Reduced-delivery stop

B. Governor Settings

Upper rated	speed			Intermediate	rated spe	ed	Lower rated	speed		Sidings	ieeve travei
Degree of deflection of control lever	rod travel	Control rod travel mm rev/min 3	(1a) (2a)	Degree of deflection of controi lever	rev/min 5	travel	Degree of deflection of control tever	rev/min 8	Control rod travel mm 3	rev/min	mm
							(3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		intermediate speed	Fuel deliv	rery characteristics 5a speed 5b	Starting Idle ewitchir		Torque- travel	control 5 Control rod
rev/min	cm ³ /1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	i	rev/min	travel mm
1	2	3	4	5	6	7	8	9
							1	
							1	
					ŀ			
						ļ		
						I		
					[

Checking values in brackets **En**

* 1 mm less centrol red travel than col 2

4

WPP 001/4 MB 14,6 v

1. Edition

PE 8 P 120 A 320 LS 3816-10 RQV 350 1150 PA 778 K

Komb.-Nr. 0 401 848 771

supersedes company Daimler-Benz OM 422 engine 243,0 kW

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067 1-8-7-6-3-5-4 je $45^{\circ}\pm0.5^{\circ}$ ($\pm0.75^{\circ}$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1150	10,9+0,1	15,6~15,8	0,5(0,9)			
350	4,9-5,1	1,2-1,8	0,8(1,2)			
				İ	1	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed	•	Intermediate	rated sp	eed	Lower rated	speed		Sliding steeve travel	
	rev/min Control	Control rod ta	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel	 	1
of control lever	rod travel mm	mm rev/min (2a)	of control lever	rev/inin	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1175	15,2-17,8	-	-	-	ca. 10		min.6,0 4,5-4,6	300 580	0,2-0,4 3,3-3,5
ca. 61	9,9 4,0 1400	1190-1200 1240-1270 0-1,0				370-48		, , , , , , , , , , , , , , , , , , ,	870 1150	4,7-4,9 8,0
	100	0 1,0				(3a)	ļ.		_	

Torque control travel a = 1,60 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics 5a	Starting idle switchir	. 0	Torque- travel	Control rod	
rev/min 1	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min 8	travel mm	
1150	156,0-158,0 (153,0-161,0)		600	128,0-132,0 (125,0-135,0		140,0-160,0 (136,0-164,0			
			900	146,0-151,0 (143,0-154,0			900	10,1+0,	

Checking values in brackets

* 1 mm less control rod travel than col. 2

1. Edition

En

PE 10 P 110 A 320 LS 3818-12 RQV 350-1150 PA 678-1 Komb.-Nr. 0 401 849 723 1-8-7-6-3-5-2-10-9-4 0-27-72-99-144-171-216-243-288-315 $^{\circ}$ + 0,5 $^{\circ}$ ($^{+}$ 0,75 $^{\circ}$)

companyDaimler-Benz OM 423 engine: 261 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	(3,95-4,15)	mm (from BDC)		Cyl. 10	
Deeqs IsnolistoR	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1150	12,0+0,1	12,2-12,4	0,4 (0,8)			
350	8,5-9,7	1,4-2,2	0,4 (0,7)	·		
600/900	-	C, Sp. 4 u. 5	0,6 (0,9)			
1150	-	C, Sp. 1 u. 2	0,6(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed	•	Intermediate	rated sp	eed	Lower rated	speed		Citalina s	
Dogree of deffection of control tever	rev/min Control rod travel mm	Control rod travel mm rev/min 2a	Degree of deffection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	
<u> </u>	1200	15,2-17,8	-	 	 	ca. 14		9 -:- 40 3	10	11
ca. 64	11,0 4,0 1400	1190-1200 1240-1270 0 - 1,0	-	-	-	ca. 14	350	min.10,2 8,5-8,7		1,2-1,4 3,6-3,9 5,2-5,5 7,8
		0.70				350-500 (3a)				

Torque control travel a = 0, /0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro- Test oil ten		Rotational-speed (2b) limitation intermediate speed				Starting idle switchir	,)	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	_	4	5	6	7	le l	9
1150	122,0-124,0 (119,0-127,0)	1190-1200	*	600	110-114,0 (107,0-117,0	100	150,0-170,0 (146,0-174,0	600	12,0+0, 12,7+0, 12,4+0,
1150	92,0-94,0 (89,0-97,0)			900	118,0-123, (115,0-126,				

Checking values in brackets

** Reduced-delivery stop

*1 mm less control rod travel then col 2 12.85

BOSCH

Geschäftsbereich KH. Kundendienst. Kiz-Ausrüstung C by Robert Bosch GmbH, D-7 Stuttgert 1, Positisch 50 Printed in the Federal Republic of Germany Imprime an République Fédérale d'Allemagne par Robert Bosch GmbH.

WPP 001/4 MB 21,9 b 3

supersedes

company: Daimler-Benz

OM 424 A 390 kW

1. Edition

PE 12 P 120 A 320 LS 3819-14 RSV 350-1150 PA 493-5

Komb.-Nr. 0 401 840 730

1-5-9-8-3-4-11-10-2-6-7-12
0-15-60-75-120-135-180-195-240-255-300-315 $^{\circ}$ $^{\pm}$ 0,5 $^{\circ}$ ($^{\pm}$ 0,75 $^{\circ}$)

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

4,00-4,10 05-4 15)

mm (from BDC)

		13.95-4.151				
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,1+0,1	15,9-16,1	0,5 (0,8)			
350	4,8-5,0	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated :	speed		Intermediate	rated sp	eed	Lower rated	speed		Sliding	leeve travel
deflection	rev/min Control rod travel mm	Control rod (19) travel mm rev/min (28)	Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 14	100		300	1,9-2,1
ca. 64	10,1 4,0	1280-1310					350	,	580 870 1150	3,5-3,7 5,2-5,4 7.7
	1375	0 -1,0				400-600				
						3 a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		intermediate speed		Starting Idle switchir		Torque- travel	Control 5	
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,6 bar 159,0-161,0 (156,0-164,0)	1190-1200 *	LDA 650	0,6 bar 160,0-166,0 (157,0-169,0		150,0-170,0 (146,0-174,0		-
1150	118,0-121,0 (115,0-124,0) **		LDA 500	0 bar 127,0-129,0 (124,0-132,0				

Checking values in brackets

* 1 mm less control rod travel than cot 2

** Adjusted at the inner lever of the reduced-delivery stop

1.86

D. Adjustment Test for Manifold Pressure Compensator

MB 21,9 b 3 - 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure ≠ bar	Gauge pressure = bar	mm (1) .
PE 12 P.:LS3819-14 +RQVPA 493-5	0,60	0 0,38 0,32	11,1-11,2 10,0-10,2 10,8-10,9 10,1-10,3
		Çi.	

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

1. Edition

Personies dina

PE 8 P 120 A 520/5 RS 7109 RQV 300-1150 PA 756 supersedes
Komb.-Nr. 0 402 648 814 companyMWM
Values only apply to test nozzle-and-holder assembly engine TBD 234 V 16
1 688 901 019 and fuel-injection test tubing 1 680 750 067

1-2-3-4-7-8-5-6 0-30-90-120-225-255-315-345 ° $\stackrel{+}{-}$ 0,5 ° ($\stackrel{+}{-}$ 0,75 °) All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(5, 15-5, 35)	mm (from BDC)	I	RW = 9,0 - 12	,U mm
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1150	12,0+0,	(18;8-18;8)	0,5 (0,9)		<u> </u>	
300	5,9-6,1	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated a	speed		Intermediate	e rated sp	eed	Lower rated	speed		00.40	
Degree of deflection of control lever	rev/min Control rod travel min	Control rod travel mm	Degree of deflection of control lever		Control rod travel	Degree of deflection of control		Control rod travel		ileeve travel
1	2	rev/min (2a)	A	rev/min 5	mm (4)	lever	rev/min	mm (3)	rev/min	i
	 				6	'	8	9	10	11
max.	1200	15,2-17,8	-		-	ca. 11	100	min. 7,4	300	1,3-1,4
			1		i) Ž		300	5,9-6,1	325	1,6-2,0
ca. 66	11,0	1190-1200	1	Ì	Ş				390	2,4-2,8
	4,0	1275-1305				310-530			470	3,0-3,5
	1400	0 - 1,0]		<u>}</u>				1190	8,5
! -										
	<u> </u>	<u></u>				3				

Torque control travel a =

mп

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel delic high idle s	very characteristics 5a speed 5b	Starting Idle switchir		Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
'	4	3	4	5	6	7	8	9
		1190-1200*			100	200,0-240,0	-	-
The finspe	ull-load deli tion sheet. -Nr. 0402 6	he pumps ope	ted on rate i	the engine i n tandem.	n acc	ordance with	the e	ngine

Checking values in brackets

 $^{\circ}$ 1 mm less control rod travel than col. 2 10.85

BOSCH

Geschäftsbereich KM. Kundendienst. Kfz-Ausrüstung C by Robert Bosch GmbH. D-7 Stuttgert 1, Postfach 50. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

D. Adjustment Test for Manifold Pressure Compensator

MWM 28,8 a - 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 8 P RS 7109	0,7	0 0,10	12,0-12,1 10,0-10,1 10,1-10,3

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

1. Edition

PE 8 P 120 A 320 LS 7801

ROV 300-1050 PA 797

supersedes-

Komb.-Nr. 0 402 648 824

Daimler-Benz company: OM 442 LA engine 320 kW

1-8-7-2-6-3-5-4 je $45^{\circ \pm}$ 0,50°($^{\pm}$ 0,75°) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(tem RDC) cyl.8; RW = 9.0 - 12.0 mm

. or crosming at pres	SHOKE (5.15-5.35)	mm (trom #DC)	., ,		***************************************
Rotational speed rev/min		Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
600	14,8+0,2	21,6-21,8	0,5(0,9)			
300 1050	6,2-6,6	1,6-2,2	0,6(1,0)			
850	-	C, Sp. 4 u. 5	0,8 (1,2)			
500	-					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed	•	Intermedi	ate rated sp	eed	Lower rated	speed			
-4	Control	Control rod (16	Degree of deffection of control	•	Control rod travel	Degree of deflection of control) 	Control red travel	Stidings	leeve travel
	mm.	řev/min (2		rev/min	mm (4)	lever	rev/min	mm (3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1090	16,5-18,0	<u>)</u>	-	_	ca. 19	100	min. 7,9	300	1,2-1,4
		4005 444		ŀ		}	300	6,2-6,4	600	4,9-5,1
ca. 54	,	1095-1110		1	İ				1075	7,4-7,6
i	4,0	1160-1190)	i]		1100	8,0-8,2
	1300	0 - 1,5				300-500			1150	9,1
						(3a)				

Torque control travel a = 0,40 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 2b imitation intermediate speed			Starting Idle switchir		Torque- travel	control 5
rev/min 1	cm³/1000 strokes	rev/min 48	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
LDA 600 LDA 1050	0,68 bar 216,0-218,0 (213,0-221,0 1,15 bar 234,0-237,0 (231,0-240,0)	LDA 850 LDA 500	1,15 bar 247,0-251,0 (244,0-254,0 0 bar 145,0-147,0 (142,0-150,0	100	200,0-220,0 (196,0-224,0)		15,5+0 15,9+0

Checking values in brackets

1 mm less control rod travel than col. 2

2.86

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600

rev/min decreasing pressure – in bar gauge pressure

MB 14,7 b

- 2 -

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P LS 780 + RQV PA 797	0,68	0,31 0,47 0,82 0,95 1,10 0,15	14,8-15,0 12,2-12,4 13,8-14,0 15,0-15,1 15,4-15,6 16,0-16,1 11,5-11,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 MB 14,7 b 1

1. Edition

PE 8 P 120 A 320 LS 7801

ROV 300-1050 PA 797-1

1-8-7-2-6-3-5-4 je $45^{\circ} \stackrel{+}{=} 0,5^{\circ} (\stackrel{+}{=} 0,75^{\circ})$ Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

aupersedes-

company: Daimler-Benz

OM 442 A engine: 260 kW

Komb.-Nr. 0 402 648 825

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	tiroke	(5.15-5.35)	mm (from BDC)	Cy1	.8: RW = 20.0-	21.0 mm
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm³/ 100 strokes 4_	mm 2	cm³/100 strokes 3	mm 6
600	13,6+0,2	19,2-19,4	0,5(0,9)			
300 1050	6,2-6,6	1,6-2,2	0,6(1,0)			
700 850	-	C, Sp. 4 u. 5	0,8(1,2)			
500	-					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Sliding	ileeva travel
deflection of control	rev/min Control rod travet mm 2	Control rod travel mm rev/min 28	of control	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/mir.	mm
max.	1090	15,2-17,8	-	-	-	ca. 19	100	min.7,7	300	1,2-1,4
ca. 53	11,6 4,0 1300	1095-1110 1155-1185 0-1,5				300-450	300	16,2-6,4	600 1075 1100 1150	4,9-5,1 7,4-7,6 8,0-8,2 9,1
		1 22		<u> </u>		3a				

Torque control travel a = 1,20 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed 2b timitation intermediate speed	Fuel deli- high idle s	rery characteristics 5a peed 5b	Starting Idle switchir	\mathbf{C}	Torque travel	Control roc
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	_
LDA 600	0,65 bar 192,0-194,0 (189,0-197,0	1095-1110*	LDA 700	1,05 bar 205,0-209,0 (202,0-212,0)	100	175,0-190,0 (171,0-194,0)	850	12,6+0,2 13,5+0,2 14,1+0,3
LDA 1050	1,05 bar 179,0-182,0 (176,0-185,0)		850 LDA 500	201,0-205,0 (198,0-208,0) 0 bar 145,0-147,0				

Checking values in brackets

(142,0-150,0)

* 1 mm less control rod trevel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Testain =

600

rev/min decreasing pressure - in bar gauge pressure

MB 14,7 b 1

-2-

Fump/governor	Setting		Measurement	diminution Control rod travel difference
	Gauge pressure =	bar	Gauge pressure = bar	mm (1)
PE 8 PLS 7801 +RQVPA 797-1	0,65		0,30 0,40 0,85	13,6-13,6 11,9-12,1 12,9-13,2 13,7-13,8

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

G15

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 19,9 e 1

3. Edition

PE 6 ZW 160/120 RS 1028/11 Komb.-Nr. 0 402 436 058

RQUV 300-900 ZWA 51 R

Replaces 9.85

MTU Firm: 396

1-2-3-4-5-60-45-120-165-240-285 ° $\stackrel{+}{-}$ 0,5 ° ($\stackrel{+}{-}$ 0,75 °)

Engine:

Note VDT-W-Allg./7

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing a	it prestroke	2,5-2,6 (2,45-2,65)	mm (from BDC)	Cy1. 6	
Rotational speed min '	Control- rod travel mm	Fuel delivery Average value cm³/1000 strokes 3	Difference in fuel delivery cm ³ /1000 strokes 4	Fuel delivery Checking values cm ³ /1000 strokes 5	Spring pre-tension (torque-control valve)
600 600 300	18,0 9,0 9,0	513,0-523,0 140,0-160,0 72,0-92,0	16,0 (24,0) 12,0 (18,0) 11,0 (16,0)	510,0-526,0 135,0-165,0 67,0-97,0	

Adjust the fuel delivery from each outlot according to the values in [

B. Governor settings

Upper rated	d speed		Medium ra	ted spe	ed	Lower rat	ed spee	d	Torqu	e control
Control lever deflection degrees 1	mm siin 1 2	Control- rod travel mm min ! 3	Control lever flection degrees 4	min ' 5	Control- rod travel mm 6	Control lever de- flection degrees 7	min ¹	Control- rod travel mm 9	min '	Control- rod travel mm
ca. 79	900 700 17,0	18,0-19,0 18,0-19,0 905-925	ca. 27 (max. 30		8,0 14,3-17,	ca. 2		8,0		_
Cd. /9	4,0 1100			300 500	10,3-11,8	\$	200 400 485 -	10,8-14, 3,9-5,0 590 = 0		

Torque control travel a - _

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gov	ed delivery ernor control lever il temperature 40°)	Control rod stop at speed	Fuel-de charac		Startin deliver	
min '	cm³/1000 strokes 2	min 'Idle stop	min '	cm ³ /1000 strokes 5	min ¹	cm³/1000 strokes 7
	not known !	300 RW = 8,0 mm	_	-	-	-
<u></u>						

Checking values in brackets

11 95

Geschaftsbereich KH. Kundendienst. Kfz. Ausrustung.

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WPP 001/4 VOL 3,6 n 1 2. Edition

<u>En</u>

VE 6/11 F 1800 L 18

Overflow temperature 45° C

supersedes 3.83 company: 01vo

0 460 416 001

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

2. Test Specifications checking values in brackets (

All test specifications are valid only for Bosch Fuer-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

 $0,2 \quad mm \stackrel{\pm}{=} 0,02(0,04)$

see VDT-W-460/.

1. Settings	Rot. speed rev/min	Sattings		Charge-air press. bar (kgt/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,2-3,6	m m	0,74	
1.2 Supply-pump pressure	1500	6,0-6,7	bar (kgf/cm²)	0,74	
1.3 Full-load delivery with	500	47,0-49,0	cm³/1000 strokes	0	
charge-air pressure Full-load delivery without	1500	63,5-64,5	cm³/1000 strokes	0,74	3,0
charge-air pressure 1.4 Idle regulation	325	8,0-12,0	cm ³ /1000 strokes	0	2,0
1.5 Full-speed regulation	100	min. 72,0	cm ³ /1000 strokes	0	
1.6 Start	2040	19,5-25,5	cm³/1000 strokes	0,74	
1.7 Load-dependent port-closing					

2.1 Timing device LDA = 0,74 bar	n = rev/min mm	1000 0,7-1,7(0,5-1,9)	1500 (2,7-4,1)	4,5-5,3	1800 3(4,2-5,6)
2.2 Supply pump LDA = 0,74 bar Overflow delivery	n = rev/min bar (kgf/cm²) n = rev/min cm³/10 s	400 2,0-2,7 500 55-110(40-125)			1800 5,9-7,6 1800 0(40-125)
2.3 Fuel deliveries Speed control lever	Rot. speed	Fuel delivery cm³/1000 strokes	Charge-air press.	3. Dimen	Sions for assembly and adjustment mm
End stop	2140-2220 2120 2040 1800 1500 * 500 500	0 max. 6,0 57,2-59,8 (55,8-61,2) (61,3-66,7) 51,5-53,5 (49,1-55,9) (44,6-51,4)	0,74 0,74 0,74 0,74 0,74 0,28	K KF MS SVS	- 5,9-6,2 1,5-1,7 max.4,2
switch-off	1800	0		A B	5,8-10,8 10,4-15,6
Idle stop	370-450 325	0 (5,5-14,5)		Use adju	oke 4,0 mm isting nut correct.
2.4 Solenoid	cut-in voltage	min. 10 V			

WPP 001/4 VWW 1,6 x

1. Edition

Testoil-ISO 4113

VE 4/9 F 1800 R 160-1 0 460 494 150

Pre-stroke setting

Overflow temperature 45° C

supersedes

٧W company:

engine:

068.5 T

All test specifications are valid only for Bosch Fuel-Injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

1. Settings	Rot, speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,2-3,6	mm	0,75	
1.2 Supply-pump pressure	1500	5,5-6,1	bar (kgf/cm²)	0,75	
1.3 Full-load delivery with	1500	41,5-42,5	cm³/1000 strokes	0,75	2,5
charge-air pressure Full-load delivery without	600	24,5-25,5	cm³/1000 strokes	0	
charge-air pressure 1.4 idle regulation	475	6,0-10,0	cm³/1000 strokes	0	2,0
1.5 Full-speed regulation	1870	9,0-15,0	cm³/1000 strokes	0,75	
1.6 Start	100	min.35,0	cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	-	1			
	l	1		1 .	

2. Test Spec	ifications	checking values in brackets ()	
2.1 Timing device LDA=0,75 bar	n = rev/min mm	1000 1,2-2,0 (0,9-2,3)	1500 (2,7-4,1)	1780 4,1-4,9 (3,8-5,2)
2.2 Supply pump LDA=0,75 bar	n = rev/min bar (kgt/cm²)	600		1780
Overflow delivery	n = rev/min	3,4-4,0 600 (0 bar)		6,2-6,8 1780 (0,75 bar)
	cm ³ /10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries				
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press bar (kgf/cm²)
End stop	1900	max. 4,0		0,75
	1870		(8,0-16,0)	0,75
	1780	39,5-41,5	(38,3-42,7)	0,75
	1500		(39,8-44,2)	0,75
	1000*	33,5-34,5	(31,8-36,2)	0,30
	600		(22,8-27,2)	0
elektr.	400	0		
Idle stop	600 475	max.3,0	(4,0-12,0)	
End stop	350 450	min.32,0 max.38,0		
2.4 Solenoid	cut-in volta	mı rated volta	n.10,0 Volt	

3. Dimer	for assembly
Designation	and adjustment
к	3,2-3,4
KF	5,7-6,0
MS	1,2-1,4
SVS	5,7
A	
В	
Observations	
* LDA-st Use ad	roke 4,5 mm justing nut

(46) to correct.

G18

46

WPP 001/4 VWW 1,6 x 1

1. Edition

Testoil-ISO 4113

VE 4/9 F 1500 R 160-2

0 460 494 151

Overflow temperature 45° C

supersedes company:

engine:

VW

068.5 T

Ind. Mot. 50 Hz

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-atroke setting = mm

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1480	3,1-3,5	mm	0,75	
1.2 Supply-pump pressure	1480	5,4-6,0	bar (kgf/⊚m²)	0,75	
1.3 Full-load delivery with	1480	41,5-42,5	cm³/10~7 strokes	0,75	2,5
charge-air pressure Full-load delivery without	600	24,5-25,5	cm³/1000 stroķes	0	
charge-air pressure 1.4 Idle regulation	475	6,0-10,0	cm ³ /1000 strokes	0	2,0
1.5 Full-speed regulation	1570	9,0-15,0	cm ³ /1000 strokes	0,75	,
1.6 Start	100	min.35,0	cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	_				

2. Test Spec	cifications	checking values in brackets ()	
2.1 Timing device	n = rev/min	1000	1480	
LDA=0,75 bar	mm	1,2-2,0 (0,9-2,3)	(2,6-4,	0)
2.2 Supply pump	n = rev/min	600		•
LDA= 0,75 bar	bar (kgf/cm²)	3,4-4,0		
Overflow delivery	n = rev/min	600 (0 bar)	1480	(0,75 bar)
	cm ³ /10 s	55-138 (40-153)	55-138	(40-153)
2.3 Fuel deliveries				3. Dimensions for assembly and adjustment

2.3 Fuel deliveries				
2.3 r dei deliveries				
Speed control lever	Rol. speed rev/min	Fuel delivery cm ³ /1000 strckes	} 	Charge-air press bar (kgf/cm²)
End stop	1600	max. 4,0		0,75
	1570		(8,0-16,0)	0,75
	1480		(39,8-44,2)	0,75
	1000*	় ং,5-34,5	(31,8-36,2)	0,30
	600		(22,0-28,0)	0
- italia aff			 	
switch-off electr.	400	0		1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
idle stop	600 475	max.3,0	(4,0-12,0)	
End stop	350 450	min.32,0 max.38,0		
2.4 Solenoid	cut-in volt	age min	1.10,0 Volt	<u></u>

rated voltage 12 V

3. Dimens	for assembly
Designation	and adjustment mm
ĸ	3,2-3,4
KF	5,7-6,0
MS	1,2-1,4
svs	
3.0	5,7
A	
В	
Observations	<u> </u>
* LDA-stro Use adju	oke 4,5 mm ssting nut correct.

estoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps VE 6/12 F 1400 R 199-1 0 460 426 062

WPP 001/4 MAN 5,6 m

2. Edition

supersedes MAN company:

D 0226 MLE 154 kW/2800 min-1

Overflow temperature 45° C MAN-Nr. 2-7643

All test specifications are valid only for Bosch Fuel injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0,2

mm + 0,02 (0,04)

see VDT-W-460/

1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	800	3,1 - 3,5	mm		
1.2 Supply pump pressure	800	5,2 - 5,8	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	-	ļ	cm ³ /1000 strokes		
Full-load delivery with charge-air pressure	1000	132,5-133,5	cm ³ /1009 strokes		4,0
1.4 Idle speed regulation	300	15,0 - 21,0	crn³/1000 strokes		3,5
1.5 Start	1480	92,0 -100,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	100	min. 90,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	800	-			

2.1 Timing device	n = rev/min	500	800 110	0	1400
	mm	1,4-2,2(1,1-2,5) (2,6			
2.2 Supply sums	n = rev/min	†			
2.2 Supply pump	bar (kgf/cm²)	200	140		
		2,3 - 2,9	7,3 -	7,9	
Overflow delivery	n = rev/min	400			
	cm ³ /10 s	42-83 (27-98)	55-13	8 (40-153)	
2.3 Fuel deliveries				3. Dimer	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press Uar (kgf/cm²)	Designation	and adjustment mm
End stop	1650	max. 2,0			
	1600	6,0-14,0 (5,0-15	(0,0	K	-
	1480	(91,0-10	(0,1	KF	5,7-5,9
	1400 1000	123,5-126,5 (122,0-128 (130,0-138	(0)	MS	1,0-1,2
	630	130,0-134,0 (128,2-13		svs	2,0
			*		
switch-off				A	
		*		В	
Idle stop	300	(13,0-23	,0)	Observations	
	350	1,0-7,0			
End ston	400	max. 2,0			
_ End stop	380 430	min. 120,0 max. 135,0			
	450				
2 4 Solenoid	cut-in voite				
	test voltage				

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WPP 001/4 VWW 2,4 S1

1. Edition

Testoil-ISO 4113

VE 6/10 F 2400 L 216 0 460 496 049 Overflow temperature 45° C

supersedes with company: 087 Tengine:

All test specifications are valid only for Bosch Fuel-Injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/.

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,4-1,8	mm	0,8	
1.2 Supply-pump pressure	1500	5,7-6,3	bar (kgf/cm²)	8,0	
1.3 Full-load delivery with	1500	45,5-46,5	cm³/1000 strokes	0,8	max. 2,5
charge-air pressure Full-load delivery without	600	24,0-25,0	cm³/1000 strokes	0	
charge-air pressure 1.4 Idle regulation	415	6,0-10,0	cm³/1000 strokes	0	max. 2,0
1.5 Full-speed regulation	2675	13,0-19,0	cm³/1000 strakes	0,8	
1.6 Start	100	min. 40,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	_				
				1	1

2. Test Spec	ifications	checking values in b	rackets ()			
2.1 Timing device LDA = 0,8 bar	n = rev/min mm	1500 (0,9-2,3)	2,7-3,	000 5(2,4-3,8)	_	400 9(3,8-5,2)
2.2 Supply pump LDA = 0,8 bar	n ≃ rev/min bar (kgf/cm²)	600 3,3-3,9			2400 7,9-8,	5
Overflow delivery	n = rev/min cm³/10 s	600 (0 41-83(26-	•		2400 (55-138(0,8 bar) 40-153)
2.3 Fuel deliveries					3. Dimer	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press bar (kgf/cm²)	Designation	and adjustment mm
End stop	2850 2675 2575 2400 1500 800 * 600 600	max. 6,0 25,0-35,0 37,5-39,5 32,0-33,0 37,0-40,0	(12,0-20,0 (26,0-34,0 (36,3-40,7 (43,8-48,2 (30,3-34,7 (35,5-41,5 (22,3-26,7	0,8 0,8 0,8 0,25 0,8	K KF MS SVS	3,2-3,4 6,3-6,6 1,4-1,6
switch-off electr.	400	0			A B	
End stop	750 415 230 380	max. 4,0 min.40,0 max.30,0	(4,0-12,0)		Use ad	roke 5,7 mm justing nut o correct.
2.4 Solenoid	cut⊣n voltage	min. rated volta	10 Volt			

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WPP UU1/4 VWW 2,4 s

1. Edition

0 411

VE 6/10 F 2400 L 216-2 Overflow temperature 45° C 0 460 406 053

supersedes Tompany. VW

engine: 087 T

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Ĉ∈≀tings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,4-1,8	mm	0,8	
1.2 Supply-pump pressure	1500	5,7-6.3	bar (kgf/cm²)	8,0	
1.3 Full-load delivery with	1500	45,5-46,5	cm³/1000 strokes	0,8	max. 2,5
charge-air pressure Full-load delivery without	600	24,0-25,0	cm³/1000 strokes	0	max. 2,0
charge-air pressure	415	6,0-10,0	cm ³ /1000 strokes	0	
1.5 Fell-speed regulation	2675	13,0-19,0	cm³/1000 strokes	0,8	
1.6 Start	100	min.40,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	-				

2. Test Spec	ifications	checking values in bra	ockets ()			
2.1 Timing device LDA = 0,8 bar	n = rev/min mm	1500 (0,9-2,3)	200 2,7-3,5(2	00 2,4-3,8) 4	2400 ,1-4,9(3,8-	5,∠)
2.2 Supply pump LDA = 0,8 bar	n = rev/min bar (kgf/cm²)	600 3,3-3,9			2400 7,9-8,5	
Overflow delivery	n = rev/min cm ³ /10 s	600 (0 b 41-83(26-9		Ę	2400 (0 55-138(40-15	
2.3 Fuel deliveries					3. Dimer	ISIONS tor assembly and adjustment
Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	mm
End stop	2850 2675 2575 2400 1500 800 * 600	25,0-35,0(2 37,5-39,5(3 (4 32,0-33,0(3 37,0-40,0(3	6,3-40,7) 3,8-48,2) 0,3-34,7)	0,8 0,8 0,8 0,8 0,8 0,25 0,8	K KF MS SVS	3,2-3,4 6,3-6,6 1,4-1,6
switch-off					A	
electr.	400	0			В	
tdle stop End st.op	750 415 230 380	max. 4,0 min.40,0 max.30,0	4,0-12,0)		Use ad:	roke 5,7 mm justing nut o correct.
2.4 Solenoid	cut-in voltage	min. rated voltage	10 Volt 12 V.			

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

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WPP 001/4 VWW 1,6 W 17

1. Edition

VE 4/9 F 2400 R 221 0 460 494 179

supersedes - company, VW engine, 086

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Fre-stroke setting mi

see VDT·W-460/

1. Settings	Rot. speed rev/min	Settings	Charge air press bar (kgl/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1250	2,1 - 2,5 mm		
1.2 Supply pump pressure	1250	4,0 - 4,6 bar (kg)	/cm²)	
1.3 Full-load delivery without charge-air pressure	-	cm ³ /100	00 strokes	
Full-load delivery with charge-air pressure	1500	31,5 ~32,5 cm ³ /100	00 strokes	2,5(3,0)
1.4 Idle speed regulation *	A 800	3,0 - 4,0 cm ³ /100	00 strokes	
1.5 Start	- 2600	11,0-17,0 cm ³ /100	00 strokes	Ì
1 6 Full-load speed regulation	100	min. 35,0 cm ³ /100	00 strokes	
1.7 Load-dependent start of delivery	1250			

2.1 Timing device	n = rev/min	1000	1250	4.0	00	
2.1 mining device	mm	1,0-1,8(0,7-2	1250 ,1) (1,6-3	,0) 4,1-4,9(00 3,8-5,2) 6,	2400 1-6,9(5,8-7,
2 2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,1-2,7				2400 7,3-7,9
Overflow delivery	n = rev/min cm ³ /10 s	600 41-83(26-98)		55-	2400 138(40-153)
2.3 Fuel deliveries					3. Dimen	18ions for assembly
Speed control lever	Rot speed rov/min	Fuel delivery cm ³ /1000 strokes		Charge-air press bar (kgf/cm²)	Designation	and adjustment mm
End stop	2800 2600 2500 2400 1500 600	20,0-30,0 (26,8-28,8)))))))			K KF MS SVS	3,2-3,4 5,7-6,0 1,3-1,5
switch-off electr.	400	0			A B	
End stop	A 550 B 375 B 425 C 525 200 350	max. 4,5 12,0-14,0(9 5,5-8,5(3 7,0-9,0 min. 35,0 max. 30,0			Observations * Setting of the residual fuel delivery Setting of the idle speed (LFG) according to VDT-I-460/135	
2.4 Solenoid	Cut-in voltag	min. 10 rated voltage	Volt			100/100

2. Test Specifications checking values in brackets (

WPP 001/4 VWW 1,6 W 16

1. Edition

Testoil-ISO 4113

VE 4/9 F 2250 R 223 0 460 494 182

supersedes сотрапу engine: 086 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting mm see VDT-W-460/...

1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1250	2,9-3,3	mm	0,75	
1.2 Supply pump pressure	1250	4,2-4,8	bar (kgt/cm²)	0,75	
1.3 Full-load delivery without	1500	43,5-44,5	cm³/1000 strokes	0,75	2,5(3,0)
charge-air pressure Full-load delivery with	600	23,5-24,5	cm³/1000 strokes	0	
charge-air pressure 1 4 Idle speed regulation *	A 800	2,5-3,5	cm ³ /1000 strokes	0	
1.5 Start	2525	13,0-19,0	cm ³ /1000 strokes	0,75	
1.6 Full-load speed regulation	100	min. 35	cm ³ /1000 strokes	0	
1.7 Load-dependent start of delivery	1250			0	

						
2.1 Timing device LDA = 0,75 ba	n = rev/min	1000 1,8-2,6(1,5	1250 -2,9)(2,4-3,8	180 3) 4,7-5,5(4		2250 1-6,9(5,8-7,2)
22 Supply pump LDA = 0,75 ba	n = rev/min /bar (kgf/cm²)	600 2,3-2,9		225 7,0-	-	
Overflow delivery	n = rev/min cm³/10 s	600 (0 b	•		50 (0,75 bai 88(40-153)	r)
2.3 Fuel deliveries	+				3. Dimer	18ions for assembly
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press bar (kgf/cm²)	Designation	and adjustment
End stop	2700 2525 2425 2250 1500 1000 ** 600 600	38,0-40,0	(12,0-20,0) (26,5-34,5) (36,8-41,2) (41,8-46,2) (31,8-36,2) (30,5-36,5) (21,8-26,2)	0,75 0,75	K KF MS SVS	3,2-3,4 5,7-6,0 1,2-1,4
					В	
Idle stop End stop	B 375 B 425 C 525 250		(9,0-17,0) (3,0-11,0)		sidual for Setting	g of the re- uel delivery. of the idle FG) according -460/135
2.4 Solenoid	cut-in voltag	min. rated voltage	10 Voit 12 V.			croke 6,8 min

WPP 001/4 VWW 1,6 W 15

1. Edition

41

VE 4/9 F 2400 R 224 0 460 494 185

supersedes company: VW engine: 086

1800

1,0-1,8(0,7-2,1) (1,6-3,0) 4,1-4,9(3,8-5,2) 6,1-6,9(5,8-7,2)

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

mm

2. Test Specifications checking values in brackets (

1000

n = rev/min

max. cut-in voltage test voltage

mm

Test Instructions and Test Equipment

2400

Pre-stroke setting

2.1 Timing device

see VDT-W-460/.

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1250	2,1-2,5	mm		
1.2 Supply pump pressure	1250	4,0-4,6	bar (kgf/cm²)		
1.3 Full-load delivery without	-		cm ³ /1000 strokes		
charge-air pressure Full-load delivery with	1500	31,5-32,5	cm ³ /1000 strokes		2,5(3,0)
charge-air pressure 1.4 Idle speed regulation	A 800	3,0-4,0	cm³/1000 strokes		
1.5 Start	2600	11,0-17,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	100	min. 35,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	1250				

1250

2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,1-2,7			2400 7,3-7,9
Overflow delivery	n = rev/min cm ³ /10 s	600 41-83(26-98)		55	2400 -138(40-153)
2.3 Fuel deliveries				3. Dimer	för assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2800 2600 2500 2400 1500 600	max. 4,0 (10,0-18,0) 20,0-30,0 (21,0-29,0) 26,8-28,8 (25,6-30,0) (29,8-34,2) 20,2-23,2 (18,7-24,7)		K KF MS SVS	3,2-3,4 5,7-6,0 1,3-1,5
switch-off electr.	400	0		A B	
End stop	A 550 B 375 B 425 C 525 200 350	max. 4,5 12,0-14,0 (9,0-17,0) 5,5-8,5 (3,0-11,0) 7,0-9,0 min.35,0 max.30,0		sidual Setting speed (I	ng of the re- fuel delivery of the idle _FG) according I-460/135

2.4 Solenoid

to VDT-I-460/135

40

WPP 001/4 MWM 5,9 a 3

1. Edition

En

PES 6 A 80 D 320 RS 1271 Komb.-Nr. 9 400 085 261

RSV 350-1250 A0B 2029-3

supersedes—
company MWM
engine D 229-6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,2-2,3 (2,15-2,35)

mm (rom BDC) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel	Fuel delivery cm ^{1/100} strokes 3	Difference cm ¹ / 100 strokes 4	Control rod travel mm	Fuel delivery cm 1/100 strokes 3	Spring pre-tensioning (forque-control valve) mm 6
1250	8,2-8,3	5,0-5,1	0,25(0,4)			
350	5,9-6,1	0,7-1,0	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Degree of		Control rod	Interm	ediate rated	d speed	4 Control	Lower	rated speed Control rod	3 10	rque control Control rod
deflection of control lever 1	travel mm	mm rev/min	4	5	6	lever deflection in degrees 7	rev/min	travel mm 9	rev/min	travel mm
loose	800	0,3-1,0	-	-	<u>-</u>	ca. 26	350	5,5	1250 500	
ca. 50	x = 3 $7,2$ $4,0$	1290-1300 1320-1350					100 350 490-550	min.19,0 5,9-6,1 = 2,0	800	
(2a)	1450	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat	11001	uel delivery paracteristics	Starting t	luel delivery 5	(4a) Idi	e stop
rev/min	emp 40°C (104°F) cm1/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm 1/1000 strokes 5	rev/min	cm ¹ /1000 strokes	rev/min	Control rod travel mm
1250	49,5-50,5 (48,0-52,0)	1290-1300*	500 800	50,5-52,5 (48,5-54,5) 51,0-53,0 (49,0-55,0)	100	19,0-21,0 mm RW	350	6,0

Checking values in brackets

^{* 1} mm less control rod travel than col. 2

40

WPP 001/4 FIA 2,6 d 1

1. Edition

En

PES 3 A 90 D 410 RS 2317 Komb.-Nr. 9 400 093 204 EP/RSV 325-1100 A 1 B 1015 L

supersedes=

_{company} Fiat

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(2,10-2,30)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve			
rev/min	mm (2)	cm³/100 strokes	cm ³ / 100 strokes	mm	cm 1/100 strokes	mm			
1	2	3	4	2	3	6			
1080	8,5-8,6	6,0-6,1	0,3 (0,5)						
200	8,9-9,1	3,0-4,0	0,25(0,45)						
						†			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

1 Uppe	r rated speed	l rev/min	Interm	ediate rat	ed speed	4	Lowe	r rated speed	(3) 10	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca. 61	1100 1140 1190	16,0 11,5 5,5		without auxiliar			325 100	6,0-6,5	500	0
23)	1170 1190 1230 1280	7,0-9,0 3,6-6,2 1,4-2,8 0,3-1,0	with spr	_	liary		325 400 450 520	6,3-6,7 2,5-4,8 1,0~3,0 0,3-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

20	ill-load stop	6 Rotational- speed limital	(3a) F.	uel delivery paracteristics	Starting t	uel delivery 5	4a) Idle stop		
Test oil to rev/min 1	emp 40°C (104°F) cm ¹ /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ¹ /1000 strokes 5	rev/min 6	cm1/1000 strokes	rev/min 8	Control roc travel mm	
1080	60,0-61,0 (58,0-63,0)	1120-1130*	-	-	100	min.140,0	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrüstung € 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuftgart t. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

WPP 001/4 FIA 2,6 d 2

1. Edition

PES 3 A 90 D 410 RS 2317 Komb - Nr. 9 400 093 211

EP/RSV 325-1200 A 1 B 2037 L

supersedes= Fiat

1-3-2 je $120^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2, 15-2, 25 Port closing at prestroke (2, 10-2, 30) mm

mm (from BDC)

Rotationa) speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm1/100 strokes	cm ³ / 100 strokes	mm	cm1/100 strokes	mm
1	2	3	4	2	3	6
1180	9,6-9,7	7,4-7,5	0,3 (0,5)			
200	8,9-9,1	3,0-4,0	0,25(0,45			
					ļ	

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

1 Uppe	r rated speed		Interm	ediale rale	d speed	(4)	Lowe	rated speed	(3) to	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca. 63	1200 1250 1290	16,0 10,2 6,0	with spri	out au	xiliaı	ca. 22 y	325 100	6,0-6,5	-	-
(2a)	1230 1280 1300 1320	7,9-9,5 2,0-3,8 1,0-2,0 0,3-1,0	with spr	h auxil ing	liary		325 400 450 550	6,3-6,7 1,4-3,2 0,3-1,0 0,3-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(4)	oll-load stop	6 Rotational- speed limitat	11.7/11	uel delivery paracteristics	Starting (uel delivery 5	(4a) ldl	e stop
Test oil te rev/min 1	emp 40°C (104°F) cm ¹ /1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ¹ /1000 strokes	rev/min	cm ¹ /1000 strokes	rev/min	Control rod travel mm
1180	74,0-75,0 (72,0-77,0)	1210-1220*	-	-	100	min.138,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 FIA 2,6 d 3

1. Edition

PES 3 A 90 D 410 RS 2317

Komb.-Nr. 9 400 093 212 1-3-2 je 120° = 0,5° (= 0,75°)

EP/RSV 325-1200 A 1 B 2068 DL

supersedes = Fiat

34/1001 54 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25 (2,10-2,30)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel					
rev/mirf	mm 2	cm ¹ /100 strokes	cm ¹ / 100 strokes	mm	cm ¹ /100 strokes	mm			
1180	9,8-9,9	7,5-7,6	0,3 (0,5)	2	3	6			
325	6,9-7,1	0,8-1,3	0,2(0,45)						

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm		Interme	diate rated	speed	Control- lever deflection in degrees	Lower	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
loose	800 x =	0,3-1,0	-	<u>-</u>	<u>-</u>	ca. 24	325 100	6,0	1180 800 500	9,8-9,9 9,9-10,2 10,6-10,7
ca. 64	8,8 4,0 1400	1240-1250 1270-1300 0,3-1,7					325 490-550	6,4-6,6 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

40	ill-load stop	6 Rotational- speed limitat	14.324	uel delivery paracteristics	Starting f	uel delivery 5	(4a) Idi	e stop
rev/min	cm ¹ /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm//1000 strokes	rev/min 8	Control rod travel mm
1180	74,5-75,5 (72,5-77,5)	1240-1250*	800 500	69,0-71,0 (66,5-73,5) 67,0-69,0 (64,5-71,5)	100	138,0-178 = 19,0-21 mm RW		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

40

WPP 001/4 F1A 3,5 e

1. Edition

En

PES 4 A 90 D 410 RS 2318 EP/RSV 325-1200 A 2 B 2037 L Komb.-Nr. 9 400 093 214

company engine 44/1009 66 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2.25 (2,10-2,30)

mm (from BDC)

Rotational speed rev/min 1	Control red travel mm 2	Fuel delivery cm ¹ /100 strokes 3	Difference cm ⁻¹ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1180 325	10.0+0.1 6.9-7.1	7,7-7,8 0,8-1,3	0,3(0,5) 0,2(0,45)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

1 Uppe	r rated speed		Intermed	diate rated	speed	(4)	Lower	rated speed	(3) Torque control		
Degree of deflection of control lever	Control rod travel mm 2	Control rod travel mm rev/min 3	4		6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm 9	rev/min	Control rod travel mm	
loose	800	0,3-1,0	-	•	-	ca. 28	325	5,5	500	10,0-10.2	
	×	=						min. 19,0	375	11.3-11.8	
ca. 58	9,0 4,0 1450	1240-1250 1300-1330 0,3-1,0					325 480-54	5,9-6.1 0=2,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	6 Rotational- speed limitat	(3a) FL	uel delivery paracteristics	Starting I	fuel delivery 5	(4a) Id	e stop
Test oil to rev/min 1	emp 40°C (104°F) cm //1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ¹ /1000 strokes	rev/min	cm ¹ /1000 strokes	rev/min 8	Control rod travel mm
1180	76.5-77.5 (74.5-79.5)	1240-1250*	-	-	100	148.0-183 =19,0-21,0 min RW		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschaftsbereich KH. Kundendienst. Ktz-Ausrustung. 1.86 c. 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH.

WPP 001/4 FAL 7,4 a 1

1. Edition

RSV 325-1100 A 1 B 1015 L PES 6 A 90 D 410 RS 2361 Komb.-Nr. 9 400 093 200

supersedes company

Fiat-Allis

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2, 15-2, 25

Port closing at prestroke (2,10-2,30) mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm 1/100 strokes	cm ¹ / 100 strokes 4	mm 2	cm //100 strokes	mm 6
1080	9,6-9,7	7,2-7,3	0,3(0,5)			
200	8,9-9,1	3,0-4,0	0,25(0,45)		

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm 2		Interme	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	r raled speed Control rod travel mm 9	3 To	rque control Control rod travel mm
ca. 67	1100 1160 1220	16,0 11,9 6,0	witho	ut aux	iliar	ca. 26 v spring	100	5,5-6,0	1080 500	0
28	1200 1240 1270 1380	7,0-9,0 3,6-5,5 1,2-3,6 0,3-1,0	with	auxil [.]	iary s	pring	325 400 450 530	5,8-6,2 2,0-4,0 1,0-3,2 0,3-1,0	4 <u>0</u> 0	1,3-1,7

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	oll-load stop	Rotational- speed limitat	11361	uel delivery paracteristics	Starting fi	uel delivery 5	(4a) Idi	e stop
rev/min	emp 40°C (104°F) cm ¹ /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ^{1/1000} strokes	rev/min	cm ³ /1000 strokes	rev/min 8	Control rod travel mm
1080	71,5~72,5 (69,5-74,5)	1120-1130*	-	-	100	min. 140,0) -	-

Checking values in brackets

* 1 mm less control rod travel than col 2

40

WPP 001/4 FAL 7,4 a 2

1. Edition

PES 6 A 90 D 410 RS 2361 Komb.-Nr. 9 400 093 201 EP/RSV 325-1150 A 1 B 1015 L

companyFiat-Allis

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25 (2,10-2,30)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuet delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	cm ¹ / 100 strokes	mm	cm ¹ /100 strokes	mm
1300	10,7+0,1	8,6-8,7	0,3 (0,5)	2	3	6
200	8,9-9,1	3,0-4,0	0,25(0,45			_
				1		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	rev/min	Interme	ediate rated	speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control- lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1150 1210	16,0 10,4	,; the	+		ca. 25	325	5,5-6,0		0
	1250	5,7	Wiche	ut aux	mary	y spring	100	19,0-21,0	500 400	1,3-1,7
	1220 1250	7,8-11,0 4,0-7,3					325 400	5,8-6,2 2,2-4,6	:	
(2a)	1300	0,8-3,0 0,3-1.0	with	auxili	ary s	pring	450 550	1,0-3,0 0,3-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ulf-load stop emp 40°C (104°F)	Rotational- speed limitat	3a) Fu	el delivery aracteristics	Starting f	uel delivery 5	4a) Idl	e stop Control rod
rev/min	cm ¹ /1000 strokes 2	changed to .) rev/min 3	rev/min 4	cm ^{1/} 1000 strokes 5	rev/min 6	cm /1000 strokes 7	rev/min 8	travel mm 9
1130	85,5-86,5 (83,5-88,5)	1170-1180*	-	-	100	min.140,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

40

WPP 001/4 FAL 7,4 a 3

1. Edition

PES 6 A 90 D 410 RS 2361 Z Komb.-Nr. 9 400 093 202 En EP/RSV 325-1150 A 1 B 1015 L supersedes

supersedes company Fiat-Allis

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,15-2,25 (2,10-2,30)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ¹ /100 strokes	cm ³ / 100 strokes	mm	cm ∂100 strokes	mm
1130	10,1+0,1	7,9-8,0	0,3 (0,5)	2	3	6
200	8,9-9,1	3,0-4,0	0,25(0,45)			-

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	raled speed Control rod travel mm		Interme	diate ra	aled speed	Control- lever deflection in degrees 7	Lowe rev/min 8	Control rod travel mm	3 To	Control rod travel mm
ca. 66	1150 1210 1250	16,0 10,4 5,7	witho	out a	auxilia	ca. 25 y sprinc	325 100	5,5-6,0	500	0 0 1,3-1,7
(2a)	1220 1250 1300 1400	7,8-11,0 4,0-7,3 0,3-3,0 0,3-1,0	with	aux	iliary	spring	325 400 480 500	5,8-6,2 1,8-4,4 0,3-2,4 0,3-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

		speed limitat	.1(3a)			Starting fuel delivery 5 4a Idle stop			
rev/min	cm ¹ /1000 strokes	changed to) rev/min	rev/min	cm ³ /1000 strokes 5	rev/min	cm ¹ /1000 strokes 7	rev/min	Control rod travel mm	
1130	78,5-79,5 (76,5-81,5)	1170-1180*	-	-	100	min.140,0	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

40

WPP 001/4 KHD 6,1 b 2

2. Edition

En

PES 6 A 85 D 410/3 RS 2366

EP/RS 325/1325 AOB 709 DL AOC 709 DL supersedes 4.85

Komb.-Nr. 0 400 866 063

engine BF 6 L 913 88 kW/2650 min⁻¹ (1)

118 kW/2650 min⁻¹(2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

1,9 -2,0 (1,85-2,05)

mm (from BDC)

lotational peed			Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)		
ev/min	mm 2	cm ¹ /100 strokes	cm ¹ / 100 strokes	mm	cm //100 strokes	mm		
1205	2	7 6 7 7	0.2/0.45	2	3	6		
1325	11,4+0,1	7,6-7,7	0,3(0,45)			_		
200	8,9-9,1	1,6-2,2	0,3(0,05)					
					1			
				·				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

			Intermediate rated speed			Control- lever	Lower	rated speed Control rod travel		Torque control Control rod travel	
of control lever 1	mm 2	mm rev/min	4	5	6	deflection in degrees 7	rev/min 8	mm 9	rev/min 10	mm 11	
loose	800	0,3-0,7	-	<i>-</i>	-	VH ca.66	325	6,0	850	11,9-12,1	
	X = 7,0					FH ca.30	(2,7-3,7	500	11,9-12,1	
VH ca.66	10,4 4,0 1630	1355-1365 1450-1480 0-1,0	K				800 1300 1400	2,7-2,9 2,0-2,2 0-1,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp_40°C (104°F)		Rotational- speed limitat Note Rotational- speed limitat			Starting fuel delivery 5 4a Idle stop				
rev/min	cm//1000 strokes	changed to) rev/min	rev/min	cm³/1000 strokes	rev/min	cm#*:00 strokes 7	rev/min 8	Control rod travel mm 9		
LDA 1325 (1)	0,5 bar 76,0-77,0 (74,0-79,0)	1355-1365*	LDA 500	0 bar 44,0-47,0 (42,0-49,0)	100	118,5-128, =18,0-18,4 mm RW		-		

Checking values in brackets

^{* 1} mm less control rod travel than col. 2

Testoil-ISO 4113

The numbers denote the sequence of the tests

B. Governor Settings

IX ' J	r rated speed		Intermodiate + 34 speed			④	Lower	Torque control		
Degree of deflection of control	travel	travel mm rev/min				Control- lever deflection	rev/min	Control rod travel mm	rev/min	travel
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11
loose	800	0,3-0,7	-	-	-	VHca.60	325	8,3	1325	11,7-11,8
		X =				FHca.35	550	3,5-4,0		12,8-13,1
VHca.6		1370-1380 1460-1490 0,3-0,7							600	13,1-13,4

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	6 Rotational- speed limitat		uel delivery Sta haracteristics Idle		Starting fuel delivery 5		4a) Idle stop	
rev/min	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes	rev/min 6	cm ³ /1000 strokes	rev/min 8	Control rod travel mm	
(2) LDA 1325	0,6 bar 80,0 - 82,0 (78,0-84,0)	1370-1380*	LDA 800 LDA 500	0,6 bar 82,0-85,0 (80,0-88,0) 0 bar 61,5-64,5 (59,5-66,5)	100	12,0-13,0 mm RW	-	-	

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

700 rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6ARS2366 +EP/RSAUB 7U9DL AUC 7U9DL	(1) 0,50	0,38 0,10	11,4-11,5 11,1-11,2 9,4- 9,8
	(2) 0,42	U , 27	12,8-12,9 12,1-12,4

Notes:

(1) when n =

rev/min: and gauge pressure =

bar (= maximum full-load control rod travel)

^{* 1} mm less control rod travel than cot 2

40

WPP 001/4 KHU 6,1 b 3

i. Edition

En

PES 6 A 85 D 410 RS 2366 EP/RS 325/1325 AOB 2057 DL Komb.-Nr. 9 400 093 215

supersedes

KHD

company

engine =

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1.9-2,0 (1.85-2,05)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ¹ /100 strokes	cm / 100 strokes 4	mm 2	cm 1/100 strokes	mm 6
1325	11,4+0.1	7,6-7,7	0,3(0,5)			
200	8,9-9,1	1.6-2,2	0,25(0.45			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	rated speed		Interme	diate rated	speed	4	Lower	rated speed	3 Torque control		
Degree of deflection of control lever	Control rod travel mm	Control-rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm	rev/min	Control rod travel mm	
VHca.70	1325 1400 1500	16.0 12.5 6.9	witho sprin	ut aux g	iliar	VHca.70 FH	325 400 600	8.3 6.0-6.8 3.5-4.0	1325 1100 550	11.4-11.5 11.9-12.1 12.6-12.8	
VHca.70 FH giax.		15.7-16, 15.2-15. 2,8-4,8	B wit	th aux ring	iliary		1000 1300 1400	3,2-3,7 2,2-2,8 0		12.0 12,0	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp=46°C (104°F)	6 Rotational speed limitat	11.30	Fuel delivery characteristics		uel delivery 5	4a) Idle stop		
rev/min	cm //1000 strokes 2	Note changed to) rev/min 3	rev/min	cm³/1000 strokes 5	rev/min	cm½1000 strokes 7	rev/min	Control rod travel mm	
LDA 1325	0.5 bar 76,0-77,0 74.0-79,0)	1355-1365*	LDA 500	0 bar 44,0-47,0 (42,0-49,0)	100	18,0 inm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

1est at n =

700

rev/min decreasing pressure - in bar gauge pressure

KHD 6.1 b 3

-2-

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 ARS 2366 +EP/RSAOB 2057	0.50 DL	0.37 0.09	11.4-11.5 11.1-11.2 9.4-9.8

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

40

WPP 001/4 KHD 6,1 a 4

1. Edition

PES 6 A 85 D 410 RS 2415 Komb.-Nr. 9 400 093 227

RSV 325-1150 A1B 1111 L

En

supersedes

company L engine

Deutz Argentinien BF 6 L 913

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9-2,0 (1,85-2,05)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
zevimin 1	mm 2	cm1/100 strokes	cm // 100 strokes	mm	cm /100 strokes	mm
1150	11,3+0,1	7,3-7,4	0,3 (0,5)	2	3	6
325	7,9-8,1	0,9-1,3	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	ction travel travel mm rev/min		Control rod travel Control lever		rev/min	rated speed Control rod travel mm	Torque control Control rod travet rev/min min 10 11			
loose	$ \begin{array}{cccc} & 800 & 0,3-1,0 \\ & x = 5,0 \end{array} $		•	-	••	ca. 27	325 100	7,5 min.19,0	1150 500 800	11,3-11,4 12,0-12,1 12,2-12,5
ca. 60	10,3 4,0 1350	1190-1200 1220-1250 0,3-1,7					325 540-610	7,9-8,1 = 2,0		,_ ,_ ,_

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	speed minitar	11301	uel delivery paracteristics	Starting t	uel delivery 5	4a) Idle stop	
rev/min	cm //1000 strokes	Note changed to) rev/min	rev/min	cm'/1000 strokes 5	rev/min	cm ¹ /1000 strokes 7	rev/min	Control rod travel mm
1150	72,5-73,5 (70,5-75,5)	1190-1200*	500 800	78,5-80,5 (76,0-83,0) 75,5-77,5 (73,0-80,0)	100	19,0-21,0 mm RW	-	-
					*		 	

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.85

WPP 001/4 KHD 9.6 s

2. Edition

PES 6 A 95 D 410 RS 2416

RO 300-1250 AB 1211 L

supersedes 9.85

Komb.-Nr. 0 400 846 544

company: KHD BF 6 L 413 FR engine 123 kW/2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 1,9 - 2,0 Port closing et prestroke (1,85-2,05)

ണ്ണ (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes	Control rod travel mm 2	Fuel delivery crn ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,0+0,1	9,9-10,1	0,35(0,6)			
300	6,4-6,6	1,9-2,5	0,35(0,55)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed	•	Intermediate	rated sp	eed	Lower rated	speed		Stiding	leeve travel
deflection	rev/min Control rod travel	Control rod ta	Degree of deflection of control		Control rod travel	Degree of deflection		Control rod travel	Silding 8	1
lever	mm	rev/min (28)	lever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1280	15,2-17,8	-	_	-		100	min.8,0	250	1,0-1,2
ca. 50	9,0	1290-1300					300	6,4-6,6	500 1000	3,2-3,5 6,2-6,4
ca. 50	4,5	1350-1380				370-485			250	8,3
!	1500	0 - 1,0	i							
						(30)				
	1500					3 a)				

Torque control travel a = 0.30

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten		Rotational-speed (imitation intermediate speed	Fuel deli high idle	very characteristics 5a speed 5b	Starting idle switchi	$\overline{}$	Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min	rev/min			rev/min	travel mm	
1250	99,0-101,0 (97,0-103,0	1290-1300 *	600	91,5-94,5 (89,0-97,0)	100	120,0-130,0 (117,0-133,0 = 14,2-14,6 mm RW		10,0+0 10,2+0 10,1+0 10,0+0
					300	19,0-25,0 (16,5-27,5)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

BOSCH

Festoil-ISC

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 OMB 4,4 e 3. Edition

PES 4 A 90 D 410 RS 2442

RQV 325-1050 AB 922 L

supersedes 4.85

company: engine:

OMB CO 3..

Komb.-Nr. 0 400 844 066

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,15-2,25 (2.10-2.30) mm

mm (from BDC)

Rotational speed rev/min		Fuel delivery cm³/100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,1 - 5,5	0,4			
	6	1,6 - 2,6				
200	9	1,9 - 2,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed			Intermediate	rated sp	eeq	Lower rated	speed		Stidings	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	(18) (28)	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm
ca. 68	1060 1120 1220 1310	15,0-18 9,7-14 0-7 0		-	-	.	ca. 18	150	9,6-11,7 17,4-10,0 2,0- 5,0 0	1060	8,3

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten		Rotational-speed (2b) timitation intermediate speed			Starting Idle switchir		Torqua- travel	Control rod
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min cm³/1000 strokes		rev/min	travei mm
1	2	3	4	5	6	7	8	9
1050	83,5-84,5 (81,5-86,5	1090-1100*	-	-	100	00 15,0-15,6 mm RW		-
						e-over point 70 U/min		

Checking values in brackets

07

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 0MB 4,6 c

2. Edition

En

PES 4 A 90 D 410 RS 2518 Komb.-Nr. 0 400 844 072

RQV 300-1400 AB 1018 L

supersedes 3.85

company engine OM-Brescia 8340.04.300

74 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25

mm (from BDC

roit closing at ples	II ORU	(2,10-2,30) """ ("o" b)C)							
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6			
1400	10,8+0,	1 7,0 - 7,1	0,3(0,45						
300	7,9-8,	1 0,9 - 1,5	0,2(0,4)						
	_								

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed	•	Intermediate	rated sp	eed	Lower rated	speed		Stiding e	leeve travel
deflection	rev/min Control	Control rod (1a)	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		
	rod travel mm	rev/min (28)	of control lever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1410	15,0-18,3	-		-	ca. 12	100	min. 7,9	250	0-1,0
ca. 66	9,8	1440-1450					300	6,3-6,5	630	2,3-3,1
	4,0	1500-1530					600-	760=2,0		4,5-4,9
	1650	0-1,0					950	max. 1,0	1400	8,1
			ļ	_		(3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load di Control-roo Test oil ten		Rotational-speed (2b) limitation intermediate speed rev/min (4a)	high idle s	cm ³ /1000 strokes	Starting Idle switchir rev/min	ng point	Torqua- travel	Control 5 Control rod travel
1	2	3	4	5	6	7	8	9
1400	69,5-70,5 (67,5-72,5)	1440-1450*	ı	-	100 300	16,2-16,6 mm RW 9,0-15,0 (7,0-17,0)	•	-

Checking values in brackets

WPP 001/4 KHD 4,1 f

1. Edition

PES 4 A 80 D 410 RS 2523

RS 325/1400 A0B 2212 L

Komb.-Nr. 9 400 085 256

Deutz Argentinien

company F 4 L 913

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,85-2,05)

mm (from BDC)

Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
mm (2)	cm ¹ /100 strokes	160 strokes	mm	cm1/100 strokes	mm
2	3	4	2	3	6
12,0+0,1	6,9-7,0	0,25 (0,4))		
8,4-8,6	1,0-1,3	0,2 (0,35)			
	mm 2 12,0+0,1	travel mm 2 cm ¹ /100 strokes 3 12,0+0,1 6,9-7,0	travel cm '/ 100 strokes cm '/ 100 strokes 2 2 2 3 4 100 strokes 4	travel cm ¹ /100 strokes	travel cm ¹ /100 strokes cm ¹ /160 strokes cm ¹ /160 strokes cm ¹ /160 strokes cm ¹ /100 strokes

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	r rated speed		Interme	ediate rate	ed speed	(4)	Lowe	r rated speed	(3) to	rque control
Degree of deflection of control lever	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	FH ca.28	325	8,5	1400	12,0-12,1
	Х	= 2,0					280 420	8,8-9,6	500 1100	12,8-12,9
VHca.55	4,0	1440-1450 1500-1530 0,3-1,7					500 1300	5,6-6,4 max. 4,4 max. 3,8		12,3-12,6

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(4)	ill load stop	6 Rotational-		uel delivery naracteristics	Starting t	luel delivery 5	(4a) Id	e stop
rev/min	cm ^{1/1000} strokes	Note changed to) rev/min 3	rev/min	cm ¹ /1000 strokes	rev/min	cm½1000 strokes	re√/min 8	Control rod travel mm
1400	69,0-71,0 (67,5-71,5)	1440-1450*	500	63,0-65,0 (60,5-66,5)	100	19,0-21,0 mm RW	-	-
			1100	66,0-68,0 (64,0-70,0)				

Checking values in brackets

40

WPP 001/4 DAF 8.3 K 8

1. Edition

PE 6 A 95 D 410 RS 2525 RSV 250-1200 A 5 C Komb.-Nr. 0 400 676 176

supersedes DAF company engine DHTD 825

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,95-2,15)

mm (from BDC; RW = 9,0-12 mm

Rotational speed	Control rod	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm ¹ /100 strokes	cm ³ / 100 strokes	mm	cm //100 strokes	mm
1	2	3	4	2	3	6
1000	12,6+0,1	10,9-11,0	0,35(0,6)			
250	6,0-6,2	0,8-1,2	0,35 (0,55)			7
		İ				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1) Uppe	er rated speed		Interm	ediate rated	speed	(4)	Lowe	raled speed	(3) to	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min B	Control rod travel mm	rev/min	Control rod travel mm
loose	800 x = 4	0,3-0,7 ,25	-	-	-	ca 21	250 100 250	5,6 min.19,5	400	12,6-12,7 12,8-12,9
ca. 55 (2a)	4,0 1	230-1240 325-1355 ,3 - 1,4						6,0-6,2 0 = 2,0	300	13,0-13,5

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	Rotational- speed limitat	14.761	iel delivery paracteristics	Starting I	uel delivery 5	(4a) Idi	e stop
rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm 9
LDA 1000	0,7 bar 10 9 ,0-110,0 (10 7 ,0-112,0)	1230-1240 *	LDA 600	0 bar 8 5 ,5-8 6 ,5 (8 3 , 5 -8 8 , 5)	100 250	125,0-135, (122,0-138 = 19,5- 21,0 mm R 8,0-12,0 (5,5-14,5)	,0)	-

Checking values in brackets

* 1 mm less control rod travel than col 2

12.85

BOSCH

Testatn =

1000

rev/min decreasing pressure - in bar gauge pressure

DAF 8,3 K 8 -2 -

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = ba	Gauge pressure = bar	mm (1)
PE 6 ARS 2525 + RSVA5C 2199 L	0,70	0,30 0,26 0	12,6-12,7 12,3-12,4 11,9-12,1 11,6-11,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

40

WPP 001/4 KHD 5.1e1 1. Edition

E.n

PES 5 A 80 D 410 RS 2526 EP/RS 325/1400 AOB 699 DL Komb.-Nr. 9 400 093 230 1-3-5-4-2 je 72° + 0.5° (+0.75°)

supersedes KHD company

All fest specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9-2,0 (1,85-2,05)

mm (from BDC)

Rota/ronal specd	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (forque-control valve)
revimin	mm 2	cm³/100 strokes	cm ¹ / 100 strokes 4	mm 2	cm1/100 strokes	mm ‡6
1400	11,2-11,3	6,5-6,6	0,25(0,4)			
325	8.4-8,6	1,0-1,3	0.2 (0,35)		
_		_		: : :		

Adjust the fuel delivery from each outlet according to the values in E

B. Governor Settings

1 Uppe	r rated speed		Interme	diate rate	d speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control- lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	· -	-	-	VH ca.6	0 325	8,3	1400	11,2-11,3
	×	=				FH	300	8.4-9.1	700	11.8-12.1
VH ca.ö		1400-1450					400 550	0,0-6,8 3,5-4,0	500	11.8-12.1
max.	4.0 1600	1500-1530 0,3-1,7					1350	2.8-3.2		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	Rotational- speed limitat	11301	uel delivery paracteristics	Starting l	luel delivery 5	(4a) 1di	e stop
rev/min	emp 40°C (104°F) cm1/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ¹ /1900 strokes	rev/min	cm·/1000 strakes	rev/min 8	Control rod travel mm
1400	64,5-65,5 (63,0-67.0)	1430-1440*	700 500	58,4-60,4 (56,4-62,4) 55.9-57.9 (53.9-59.9)	100	100,0-140),0 -	-

Checking values in brackets

40

WPP 001/4 KHD 6,1 d 2

1. Edition

225 000 4

PES 6 A 80 D 410/3 RS 2527 Komb.-Nr. 0 400 866 117

RSV 325-900 A 1 C 602-21

supersedes comman KHD

engine F 6L 913 65kW/1800 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,9-2,0 Port closing at prestroke (1,85-2,05)

Testoil-130 4113

 $^{mm \text{ (froin BDC)}}RW = 9,0-12,0 \text{ mm}$

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes	cm ¹ / 100 strokes 4	mm 2	cm*/100 strokes	mm 6
880	12,2+0,1	5,1-5,2	0,25(0,4)			
325	9,3-9,5	0,9-1,5	0,2(0,35)			
		<u> </u>				

Adjust the fuel delivery from each cuttet according to the values in

B. Governor Settings

1 Uppe	er rated speed	t rev/min	Interm	ediate rat	ed speed	4	Lower	rated speed	(3) to	orque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min 3	1	5	6	Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-0,7	-	-	•	ca. 23	325	9,4	-	-
	X =	3,25					140	min. 19,5	ļ	
ca. 46	11,2 4,0 1110	920-930 945-975 0,3-1,4					325 365-42	9,3-9,5		

The numbers denote the sequence of the tesis* Set idle-speed auxiliary spring at 2 mm control-rod travel,

C. Settings for Fuel Injection Pump with Fitted Governor

W	ull-load stop	Rotational- speed limitat		uel delivery paracteristics	Starting f	iuel delivery 5	(4a) Id	e stop
rev/min	emp 40°C (104°F) cm*/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm-//1000 strakes 5	rev/min	cm ¹ /1000 strokes	rev/min 8	Control rod travel mm
880	50,5-51,5 (49,0-53,0)	920-930	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod trave! than col. 2

12.85

BOSCH

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WPP 001/4 KHD 6.1 (

1. Edition

PES 6 A 80 D 410 RS 2527

RS 325/1400 A0B 2212 L

supersedes Deutz Argentinien

company F 6 L 913

Komb.-Nr. 9 400 085 259

engine 142 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,85-2,05)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm //100 strokes	cm ³ / 100 strokes	mm 2	cm ¹ /100 strokes	mm 6
1400	12,0+0,1	6,9-7,0	0,25 (0,4)			
325	8,4-8,6	1,0-1,3	0,2 (0,35)			
		•				

Adjust the fuel delivery from each outlet according to the values in \square

B. Governor Settings

(1) Uppe	r rated speed	rev/min	Interm	ediate rate	d speed	(4)	Lowe	er rated speed	(3) 10	rque control
Degree of deflection of control lever	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control- lever dellection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm 1.1
loose	800	0,3-1,0	-	-	-	FH ca.28	325	8,5	1400	12,0-12,1
	Х	= 2,0					280 420	8,8-9,6 5,6-6,4	500 1100	12,8-12,9 12,3-12,6
VHca.55 FHmax. (2a)	4,0	1440-1450 1500-1530 0,3-1,7				i	550 1300	max. 4,4 max. 3,8		12,5-12,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load step	6 Rotational- speed limitat		uel delivery paracteristics	Starting Idle	fuel delivery 5	(4a) Idi	e stop
rev/min	cm1/1000 strokes	Note changed to) rev/min 3	rev/min	cm ^{1/1000} strokes	rev/min	cm ¹ /1000 strokes	rev/min	Control rod travel mm
1400	69,0-70,0 (67,5-71,5)	1440-1450 *	500	63,0-65,0 (60,5-66,5)	100	19,0-21,0 mm RW	-	-
			1100	66,0-68,0 (64,0-70,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.85



WPP 001/4 KHD 1 g 20

1. Edition

En

PES 3 A 80 D 410/3 RS 2540 EP/RSV 325-1075 A 1 B 1111 DL

company KHD-Argentinien

F 3 L 913 Traktor

Komb.-Nr. 9 400 093 400

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9 - 2,0(1.85-2.05)

mm (from BDC)

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ¹ /100 strokes	cm ¹ / 100 strokes 4	ınm 2	cm ⁴ /100 strokes	mm 6
1050	12,0+0.1	6,2-6,3	0,3(0,45)			
325	7,9-8,1	0,4-0,9	0,2 (0,4)			
	1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	r rated speed	rev/min	Interme	diate rated	speed	(4)	Lower	rated speed	(3) to	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0 x =	-	-	-	ca. 22	325 325	5,5 5,9-6,1		12,0-12,1 12,1-12,4
ca. 57	11,0 4,0 1250	1115-1125 1160-1190 0,3-1,7					495 - 800	555=2,0 max.1,0		12,8-12,9

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) F.	ult-load stop	6 Rotational-speed limitat	11.341	uel delivery naracteristics	Starting f	uel delivery 5	(4a) idi	e stop
Test oil to	emp 40°C (104°F) cm ¹ /1000 strokes	Note changed to) rev/min	rev/min	cm ¹ /1000 strokes	rev/min	cm ¹ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
	61,0-63,0 (59,0-65,0)	1115-1125*	800	59,5-62,5 (59,0-63,0)	100	99,5-139 =19,0-21,0 mm RW	,5 -	-
			500	64,0-67,0 (63,5-67,5)				

Checking values in brackets

Fuel Injection Pumps and Governors

WPP 001/4 FOR 5,9 d 6. Edition

PES 6 A 90 D 210 RS 2628 Komb.-Nr. 0 400 866 104 RSV 325-1200 AOB 2140 L AOC 2140 L supersedes5..84 company: Ford

engine

Dover 363 T/C

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

At port closing the locating pin must engage

2,7-2,8 (2,65-2,85) mm (from BDC) in the slot of the pointer. Port closing at prestroke

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1175	11,5+0,1	8,4 - 8,5	0,3(0,45)			
350	5,1-5,3	0,5 - 1,1	0,2(0,4)	<u> </u>		
	:					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

10	control
travel trav	`
9 10 11	ŀ
1	,5+0,1
"'''• 13 ,7	,5+°0,2
50 = 2,0 nax. 1,0	
1	ravel tra mm 10 11 4,8 1175 11 5,2-5,4 50 = 2,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ad stop	6 Rotational- speed limitat.		el delivery tracteristics	Starting Idle	fuel delivery	(5a) Idi	e stop
Test oil temp rev/min	cm³/1000 strokes	Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
LDA 1175	0,7 bar 835-84,5 (81,5-86,5)	1240-1250 *	500	0 bar 49,0 - 51,0 47,0 - 5 <i>3</i> ,0)	(76,0 - 90,0 73,0-93,0) = 19,5-21,0 mma RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

Test at n =

rev/min decreasing pressure ~ in bar gauge pressure

FOR 5,9 d

500	W.G. 666g		
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 A RS 2628 mit AOB 2140 L	0,7	0 0,48 0,30	11,5 - 11,6 10,1 - 10,2 11,1 - 11,2 10,3 - 10,5
		•	

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

40

WPP 001/4 KHD 4,1 d 3 2. Edition

En

PES 4 A 85 D 410/3 RS 2638

Komb.-Nr. 0 400 864 060

RSV 325-1400 A 8 C 707 L

supersedes KHD

company BF 4 L 913

engine 78 kW / 2800 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,5-2,6 (2,45-2,65)

mm (from BDC)

; RW = 9.0 - 12.0 mm

Rotational speed rev/min 1	Control rod travel	Fuel delivery cm ^{1/100} strokes 3	Difference cm ^{-/} 100 strokes 4	Control rod travel mm 2	Fuel delivery cm*/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1250	12,7+0,1	8,3 - 8,4	0,3 (0,45)			
325	8,4-8,6	0,9 - 1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	t rev/min	Interme	diate rate	d speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection	Control rod travel	Control rod travel				Control- lever		Control rod travel		Control rod travel
of control lever	mm	mm rev/min				deflection in degrees	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	•	ca. 22	325	8,0	1250	12,7-12,8
ŀ	X =	5,25					100	min. 19,5	500	13,6-13,7
ca. 62	11,7 4,0 1560	1290-1300 1390-1420 0,3-1,4					325 660 -	8,4-8,6 720 = 2,0	1015	13,1-13,3

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

C	all-load stop		speed limitat Sa characteristics			Starting fuel delivery 5 4a Idle		
	emp 40°C (104°F) cm ^{1/} 1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm³/1000 strokes 5	rev/min	cm1/1000 strokes	rev/min	Control rod travel mm
LDA 1250	0,7 bar 82,5 - 83,5 (80,5 - 85,5)	1290-1300*	LDA 850 LDA 500	0,7 bar 84,5 - 86,5 (82,0 - 89,0) 0 bar 59,5 - 61,5 (57,5 - 63,5)	100	105,0-115, 102,0-118,0 = 17,1-17, mm RW)	-

Checking values in brackets

Testatn =

rev/min decreasing pressure - in bar gauge pressure

KHD 4,1 d 3 - 2

300			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 4 ARS 2638 + RSVA 8 C 707 L	0,70	0 0,41 0,25	13,5 - 13,6 12,3 - 12,4 13,2 - 13,3 12,8 - 13,0

Notes.

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

40

WPP 001/4 KHD 4,1 d

2. Edition

En

PES 4 A 85 D 410/3 RS 2638

RSV 325-1400 A 8 C 707-3 L

supersedes 8.85

Komb.-Nr. 0 400 864 063

company KHD BF 4 L 913

 $78 \text{ kW}/2800 \text{ min}^{-1}$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,5-2,6 (2,45-2,65)

mm (from BQCRW = 9,0 - 12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ⁻ /100 strokes	cm ¹ / 100 strokes 4	mm 2	cm 1/100 strokes	mm 6
1 250	12,7+0,1	8,3 - 8,4	0,3 (0,45			
325	8,4-8,6	0,8 - 1,4	0,25(0,45			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	I rev/min	Interme	diate rated	speed	4	Lowe	rated speed	(3) 10	rque control
Degree of deflection of control	Control rod travel mm	Control rod travel mm rev/min				Control- lever deflection	rev/min	Control rod travet mm	rev/min	Control rod travel 5im
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11
loose	800	0,3 - 0,7	-		-	ca. 16	325	8,0	1250	12,7-12,8
	X =	4,0					325	8,4-8,6	500	13,7-13,8
ca.54	11,4 4,0 1540	1290-1300 1375-1405 0,3-1,4					610 - 6	0 = 2,0	850 950	13,5-13,6 13,2-13,4

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	speed infinial	(3a) F.C	iel delivery paracteristics	Starting (uel delivery 5	4a) Idl	e stop
rev/min	emp 40°C (104°F) cm1/1000 strokes	Note changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1250	0,7 bar 82,5 - 83,5 (80,5 - 85,5)	1290-1300*	LDA 850 LDA 500	0,7 bar 84,5 - 86,5 (82,0 - 89,0) 0 bar 59,5 - 61,5 (57,5 - 63,5)	100	115,0-125, 112,0-128, =18,4-18,8 mm RW	0)	-

Checking values in brackets

KHD 4,1 d -

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

500			
Pump/governor	Setting	Measurement	diminution Control rod trave!- difference
·	Gauge pressure = bar	Gauge pressure - bar	mm (1)
PES 4 ARS 2638 +RSVA8C 707-3L	0,70	0 0,39 0,25	13,7 - 13,8 12,3 - 12,4 13,5 - 13,6 12,8 - 13,0

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 VAU 5,4 a 1

3. Edition

PES 6 A 95 D 320 RS 2646 Komb.-Nr. 0 400 846 533

RQV 300-1300 AB 1163-1 R

supersedes 7.85

company: Vauxhall

engine: 330 T/C

Testal SO 44 to

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,5-2,6
Port closing at prestroke (2,45-2,65) mm (from BDC)

		12.40-2.001				
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
810	9,7-9,8	6,4-6,6	0,35(0,6			
300	5,9-6,1	0,8-1,4	0,35(0,5			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed		Intermediat	e rated sp	eed	Lower rated	speed		Sliding s	leeve travel
Degree of deflection of control lever	rev/min Controt rod travel mm 2	Control rod travel mm rev/min (28	of control	rev/min	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3		mm 11
max.	1440	15,2-17,8		-	-	ca. 17	100	min.7,4		0,9-1,1
ca. 61	8,7 4,0 1600	1350-1360 1455-1485 0-1,0				350-490	300	5,9-6,1		3,1-3,5 5,7-5,8 8,0
						(3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter	d stop np. 40°C (104°F) 2	limitation intermediate speed	Fus. deliv		Starting Idle switchir	fuel delivery 6	Torque- travel	Control cod
rev/min	cm³/1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm.
1	2	3	4	5	6	7	8	9
810	63,5-65,5 (61,5-67,5)	1350-1360*	1200 500	71,5-74,5 (69,5-76,5) 52,0-55,0 (50,0-57,0)	100 300	97,0-107,0 94,0-110,0) = 19,5-21,0 mm RW 8,0-14,0 (5,5-16,5)	-	-

Checking values in brackets

40

WPP 001/4 MWM 4,1 b
4. Edition

En

PES 4 A 90 D 320/3 RS 2659 Komb.-Nr. 0 400 864 057 RSV 325-1500 A2B 505-2 R

supersede 7.85 MWM D 266 B-4

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,95-3,05 (2,90-3,10)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference cm ^{-y} 100 strokes	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	mm 6
1500	10,5+0,1	9,0-9,1	0,3 (0,45)			
325	6,4-6,6	1,1-1,7	0,2 (0,4			

Adjust the fuel delivery from each outlet according to the values in \Box

B. Governor Settings

1 Uppe	er rated speed	rev/min	Interme	ediate rate	d speed	(4)	Lowe	r rated speed	(3) 10	rque control
Degree of deflection of control	Control rod travel mm	Control rod travel mm rev/min				Control- lever deflection	rev/min	Control rod travel	1 (~)	Control rod travel
lever	2	3	4	5	6	in degrees 7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.27	325	6,0	-	-
	X =	5,5					100	min.19,5		
ca.66	9,5 4,0 1780	1540-1550 1590-1620 0,3-1,7					325 460-5	6,4-6,6		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	Rotational- speed limitat		uel delivery paracteristics	Starting t	luel delivery 5	(4a) Idi	e stop
rev/min	emp 40°C (104°F) cm ¹ /1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm*/1000 strokes	rev/min	Control root travel mm
1500	89,5-90,5 (87,5-92,5)	1540-1550*	-	-	100	131,0-141 (128,0-144 = 19,5- 21,0 mm RW	,0)	-

Checking values in brackets

^{* 1} mm less control rod travel than col 2

WPP 001/4 MWM 4,1b1 1. Edition

Εn

PES 4 A 90 D 320/3 RS 2659 Komb.-Nr. 0 400 864 057 RSV 325-1500 A 2 C 505 - 2 R

supersedes MWM company D 226 B-4

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,05) (2,90-3,10)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm7100 strokes	cm ^{1/} 100 strokes	mm	cm·/100 strokes	mm
1	2	3	4	2	3	6
1500	11,2-0,1	9,0-9,1	0,3(0,5)			
325	7,0-7,2	0,8-1,4	0,25(0,45)			
			İ			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	r rated speed	I rev/min	Interme	diate rated	speed	(4)	Lower	3 Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm 9	rev/min	Control rod travel mm
loose	800 x =	0,3-0,7 4,75	-	-	-	ca. 24	100	6,6 min. 19,5 7,0-7,2	••	-
ca. 61	9,5 4,0 1780	1540-1550 1615-1645 0,3-1,4						525=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ulf-load stop emp 40°C (104°F) cm1/1000 strokes	Rotational- speed limitat Note changed to) rev/min		rel delivery paracteristics cm ³ /1000 strokes	Starting f Idle rev/min 6	cm //1000 strokes	40	Control rod travel mm
1500	89,5 - 90,5 87,5 - 92,5)	1540-1550*	<u>-</u>	-	100	131,0-141 (128,0-144 = 19,5-21,0 mm RW	0)	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86



2

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MAN 11.4 h

2. Edition

PES 6 A 95 D 410 LS 2669 Komb.-Nr. 0 400 846 523

RQ 750 AB 1172 L

supersedes 9.84

MAN company:

engine

D 2566 ME

114 kW/1500 min⁻¹

MAN-Nr. 2-7365

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1.45-1.65)

mm (from BDC) Cy1. 6; RW = 9,0-12.0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm ³ / 100 strokes 4	Control rod travet mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,1+0,	11,8-12,0	0,35(0,6)			
250	5,9-6,	0,9-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slide:	Full-load	speed re	gulation		Idle spec	ed regula	ation		Torque o	\sim
PRG che rev/min 1	Control rod travel	Setting por rev/min 3	Control rod travel mm	Test spec Control rod travel mm 5	rev/min	Setting prev/min	Control rod travel	rev/min	cifications (5) Control rod travel mm 10	rev/min	Control rod travel mm
•	-	-	_		750-755 775-785	-	-	_		-	-
	ontrol travel ght assembly dime	nsion a =	<u>-</u>	mm	Spe	eed regula	I ntion: At	750-7	55 min ⁻¹	<u> </u>	1 mm less contro rod trave

C. Settings for Fuel Injection Pump with Fitted Governor

	delivery on control lever mp. 40°C (104°F)	Control rod stop (3a)	Fuel deliv	ery characteristics	3 b	Starting f Idle spee	Control
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		rev/min 6	red travel cm ³ /1000 strokes/ mm 7
700	118,0-120,0 (116,0-122,0)	-	-	-		-	-

Checking values in brackets

WPP 001/4 KHD 8,0 o

1. Edition

En

PES 5 A 95 D 410 RS 2680

RQV 300-1150 AB 1217 L

supersedes KHI

Komb.-Nr. 0 400 845 082

company F 5 L 413 FRW engine 85,0 kW/2790 min-1

1- 3- 5 - 4 - 2

 $0-72-144-216-288 \pm 0.5^{\circ} (\pm 0.75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(1,45-1,65)	mm (from BDC)	mm (from BDC); $RW = 9,0-12,0 \text{ mm}$							
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6					
1150	8,3+0,1	7,2-7,4	0,35(0,6)								
300	6,4-6,6	1,3-1,7	0,35(0,55)							

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

		Intermediate	rated sp	eea	Lower rated	speed		Slidina s	leeve travel
Control		Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
mm	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
2	3	4	5	6	7	8	9	10	11
1200	15,2-17,8	-	-	<u>-</u>	ca. 13	100	min.8,0	300	1,3-1,5
						300	6,4-6,6		3,4-3,6
7,3	1190-1200							800	5,2-5,6
4,0	1230-1260				320-415			150	8,0
1350	0-1,0								
j	•			1.	(3a)				
2	1200 7,3	ravel mm rev/min 2a 3 1200 15,2-17,8 7,3 1190-1200 4,0 1230-1260	1200 15,2-17,8 -	1200 15,2-17,8 - -	travel t	Control Goldtrave Goldtr	Control od travel mm rev/min (2a) deflection of control lever rev/min (5	Control od travel mm Control of control lever Control le	Control of travel mm Can

Torque control travel a = 1,40 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-foad de Control-roo Test oil ten		Rotational-speed (2b) limitation intermediate speed			Starting Idle switching	, 0	Torque travel	-control 5
rev/min	cm³/1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1150	72,0-74,0 (70,0-76,0)	1190-1200*	700* 700	* 80,5-83,5 (78,0-86,0) 98,5-101,5 (96,0-104,0)	100	120,0-130,0 (117,0-133,0)	500 840	8,3+0,1 9,7+0,1 9,3+0,2 8,6+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

** reduced fuel delivery

10.85

BOSCH

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Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 9,6 m 1

1. Edition

PES 6 A 95 D 410 RS 2681

RQV 300-1150 AB 1217 L

supersedescompany: KHD

F

F 6 L 413 FRW 102.0 kW/2300 min-1

Komb.-Nr. 0 400 846 545

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testars

A. Fuel Injection Pump Settings

Port closing at prestroke

1.45-1.65) mm (from BDC)

RW = 9.0 - 12.0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	8,3+0,1	7,2-7,4	0,35(0,6)			
300	6,4-6,6	1,3-1,7	0,35(0,55)		
!	٠					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Slidings	leeve travel
	rev/min Control	Control rod ta	Degree of deflection		Control rod travel	Degree of deflection	Control rod travel			1
	rod travel mm	rev/min (2a	of control lever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1200	15,2-17,8	-	-	-	ca. 13		min.8,0 6,4-6,6	300 500	1,3-1,5 3,4-3,6
ca. 64	7,3 4,0 1350	1230-1260	1			320-415			800 1150	5,2-5,6 8,0
	1330	0-1,0				(3a)				

Torque control travel a = 1,40 mm

C. Settings for Fuel Injection Pump with Fitted Governor

1	1 stop np. 40°C (104°F) 2	limitation high intermediate speed		delivery characteristics (5a) idle speed (5b)		fuel delivery 6	Torque travel	-control 5 Control rod travel
rev/min	cm ³ /1000 strokes	rev/min (48)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	(LASAL)
1	2	3	4	5	6	7	8	9
1150	72,0-74,0 (70,0-76,0)	1190-1200*	700* 700	* 80,5-83,5 (78,0-86,0) 98,5-101,5 (96,0-104,0)	100	120,0-130,0 (117,0-133,0)	500 840	
				:				

Checking values in brackets

* 1 mm less control rod travel than col. 2

** reduced fuel delivery

BOSCH

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WP 001/4 FOR 6,6a3

1. Edition

PES o A 95 U 410 RS 2688 KQV 350-1400 AB 1202-1L

Komb.-Nr. 9 400 085 263

supersedes companyFord (FTO) engine 6,6 1 NA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 3,15-3,25

Port closing at prestroke mm (from BDC) (3.20-3.30)

Rotational speed rev/min		Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	10,1+0,1	7,1-7,3	0,35(0,6)			
350	6,4-6,6	0,7-1,1	0,35(0,55)		
	•					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed		Intermediate	rated sp	eed	Lower rated	speed		Stidings	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min 2a	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm
max.	1420	15,2-17,8	-	-	-	ca. 14	100	min.9,0	350	1,3-1,6
ca. 63	9,1 4,0 1700	1440-1450 1540-1570 0- 1,0		,		·	350 540-	6,4-6,6 600=2,0	700 1100 1420	4,2-4,6 6,1-6,4 8,6
						(3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Ilmitation intermediate speed	1		Idle	fuel delivery 6	Torque- travel	Control rod
rev/min	cm³/1000 strokes .	rev/min (48)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
1400	7 0,5-72,5 (68,5-/4,5)	1440-1450*	500	50,5-53,5 (48,0-56,0)	100 350	112,0-122,0 = 19,0- 21,0 mm RW 7,0-11,0 (5,0-13,0)	_	-

Checking values in brackets

2.86

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^{* 1} mm less control rod travel than col. 2

WPP 001/4 FOR 6,6a2

1. Edition

PES 6 A 95 D 410 RS 2688 RQV 375-1300 AB 1208-1L Komb.-Nr. 9 400 085 262

supersedes company Ford engine b,b L TC 165 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres		3.10-3.30)	mm (from BDC)	RW=9,U-	12,0 mm	
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	12,1+0,	1 8,6-8,8	0,35 (0,6			
375	b,/-b,	∮ 1,0-1,4	0,35 (0,5)		

Adjust the fuel delivery from each outlet according to the values in p

B. Governor Settings

Upper rated s	speed			Intermediate	rated sp	eed	Lower rated	speed		Sliding .	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	(a) (2a)	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Centrol rod travel mm 3	rev/min	1
max.	1345 11,1 4,0 1600	1340-1	350 480		-	-	ca.16	375	mın.10,0 6,7- 6,9 710=2,0	700	1,3-1,6 4,1-4,5 6,3-6,6 8,6
							3a				

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational speed (2b) limitation intermediate speed	Fuel delivery characteristics (5a) high idle speed (5b)		Starting Idle switchir		Torque- travel	Control 5 Control rod travel	
ev/min cm³/1000 strokes		rev/min (48)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min		
1	2	3	4	5	8	7	8	9	
LUA 1300	0,6 bar 86,0-88,0 84,0-90,0)	1340-1350*	LDA 900	0,6 bar 86,0-89,0 (83,5-91,5)	100	115,0-125,0 =20,0- 21,0 mm RW	600	12,1+0, 12,8+0, 12,6+0, 12,4+0	
600	0,6 bar 83,0-86,0 80,5-88,5)		LUA 600	0 bar 57,0-59,0 (55,0-61,0)	:		300	12,410	

Checking values in brackets

Test at n = rev/min decreasing pressure - in bar gauge pressure

FUR 6,6a2

nicreasing		
Setting	Measurement	diminution Control rod travel- difference
Gauge pressure = bar	Gauge pressure = bar	mm (1)
υ,60	υ υ,40 υ,25	12,8-12,9 10,6-10,7 12,2-12,3 11,0-11,2
	Setting Gauge pressure = bar	Setting Measurement Gauge pressure = bar U,60 U,40

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

40

WPP 001/4 MWM 3,9a1
1. Edition

En

PES 4 A 90 D 320 RS 2702 Komb.-Nr. 9 400 085 268

RSV 350-1150 A2B 2129-7R

supersede5

company MWM

engine D 229-4

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,65-2,75 (2,60-2,80)

mm (from BDC)

	_ (,00-2,007				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm³/100 strokes	cm ¹ / 100 strokes	mm	cm 1/100 strokes	mm
1	2	3	4	2	3	6
1150	9,5-9,6	7,0-7,1	0,3(0,5)			,
350	5,9-6,1	1,1-1,5	0,25(0,45)			<u> </u>
						·
						:

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	er rated speed		Intermediate rated speed			(4)	Lower	rated speed	3 Torque control		
Degree of deflection of control	Control rod travel mm	Control red travel mm rev/min				Control- lever deflection	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11	
loose	800	0,3-1,0	-	•	-	ca. 23	350	5,5	1150	9,5-9,6	
	x_	= 3,75						min.19,0		10,4-10,5	
ca. 46	1 7 7 "	1190-1200 1225-1255 0,3-1,7					350 590-650	5,9-6,1 =2,0	800	9,8-10,1	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

ピツ	ull-load stop		speed limitat Characteristics			fuel delivery 5			
rev/min	emp 40°C (104°F) cm ³ /1000 strokes	changed to)		cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1150	70,0-71,0 (68,0-73,0)	1190-1200*	500	67,0-69,0 (64,5-71,5)	100	19,0-21,0 mm RW	-	-	
			800	69,0-71,0 (66,5-73,5)	350	11,0-15,0 (9,0-17,0)			
				(00,5-75,5)		, 5,0-17,07			

Checking values in brackets



Testoil-ISO 411

1. Edition

En

PES 4 A 85 D 410/3 RS 2707 Komb.-Nr. 0 400 834 002 RQV 300-1250 AB 1089-1 L

supersedes =

company: KHD

engine:

BF 4 L 913 T 64 kW/2500 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at pres	stroke	2,5-2,6 (2,45-2,65)	mm (from BDC)	mm (from BDC)							
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6					
1250	12,0+0,1	7,0-7,1	0,3 (0,45								
300	4,9-5,1	1,0-1,6	0,25(0,45			7					
		:		<u>.</u> :							

Adjust the fuel delivery from each outlet according to the values in _______.

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed		Lower rated	speed		Suding	sleeve travel
deflection	rev/min Control rod travel	Control rod travel	(b)	Degree of deflection of control		Control ro travel	od -	Degree of deffection of control		Control rod travel		1
		rev/min	(2B)	lever	rev/min	mm	(4)	lever	rev/min	mm (3	rev/min	mm
1	2	3		4	5	6		7	8	9	10	11
max.	1290	15,2-17	,8	-	-	-		ca. 10		min. 6,4		0,5-0,7
i						ĺ			300	4,9-5,1	450	[3, 1-3, 3]
ca. 66	11,0	1290-13	00						355-4	115 = 2,0	008 0	4,6-4,7
	4,0	1375-14	05			i				•	1100	6,6-6,8
	1500	0 - 1,	0								1300	8,7
											1	
								(3a)			1	

Torque control travel a = 0,35 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load di Control-roi Test oil ten rev/min	d stop np. 40°C (104°F) 2	limitation intermediate speed	high idle :	very characteristics 5a speed 5b cm³/1000 strokes	switching point			control 5 Control rod travel mm
1250	69,5-70,5 (67,5-72,5)	1290-1300*	650	58,5-60,5 (56,0-63,0)	100	120,0-130,0 (117,0-133,0) = 19,3-15,7 mm RW		9 12,0+0,1 12,3+0, 12,2+0, 12,0-0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.86

WPP 001/4 VAL 2,7 a

1. Edition

PES 3 A 95 D 320 RS 2711 Komb.-Nr. 0 400 873 037 1-2-3 je 120° ± 0,5° (± 0,75°)

RSV 325-1175 AOC 2178-3 R

supersede se

company Valmet 309 DS 4 45 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,5-2,6 (2.45-2.65)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ¹ /100 strokes	cm ³ / 100 strokes	mm 2	cm ³ /100 strokes	mm 6
1200	10,8+0,1	8,1-8,3	0,35 (0,6)	-		
325	5,1-5,3	0,9-1,5	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	er rated speed	rev/min	Interme	ediate rate	speed	Lower rated speed 3 Torque control				
Degree of deflection	Control rod	Control rod travel				Control- lever		Control rod		Control rod travel
of control	mm	mm rev/min		1		deflection in degrees	rev/min	ınm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	•	-	ca. 27	325	4,7	1200	10,8-10,9
	X =	5,25					100	min.19,5	500 910	11,1-11,2 10,9-11,1
ca. 49	9,8	1240-1250					325 440-5	5,1-5,3 $00 = 2,0$		
(2a)	4,0	1335-1365						'		
	1500	0,3-1,4					<u> </u>	<u> </u>		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b) Ft	ull-load stop	6 Rotational- speed limitat	Starting fuel delivery (5) (4a) (die stop					
Test oil to	emp. 40°C (104°F) cm ³ /1000 strokes	Note changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
<u> </u>	2		4	5	6	7	8	9
1200	80,5-82,5 (78,5-84,5)	1240-1250*	500	64,5-67,5 (62,0-70,0)	325	205,0-215 (202,0-218 =19,5-21, mm RW 9,0-15,0 (6,5-17,5)	,0) 0	-

Checking values in brackets

Festoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FOR 6,6 f

1. Edition

PES 6 A 95 D 410 RS 2714 Komb.-Nr. 9 400 085 258

RQV 375-1300 A B 1208-1L

supersedes

companyFord engine: 6,6 TC

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
12,1+0,1	8,6-8,8	0,35(0,6)			
6,7-6,9	1,0-1,4	0,35(0,55)		
•					
	Control rod travel mm 2 12,1+0,1	mm cm ³ /100 strokes 3 12,1+0,1 8,6-8,8	Control rod travel mm cm³/100 strokes 2 12,1+0,1 8,6-8,8 Difference cm³/100 strokes 4 0,35(0,6)	Control rod travel mm	Control rod travel Control rod travel

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed	•	Intermediate	rated sp	eed	Lower rated	speed			
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control 70d (a) travel mm rev/min (2a)	Degree of deflection of control lever 4	rev/min 5	Control rod travei mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3 9	rev/min	mm
max. ca. 63	1345 11,1 4,0 1600	15,2-17,8 1340-1350 1450-1480 0-1,0	•	•	-	ca. 16	375	min. 10,0 6,7-6,9 10=2,0	350 700 1100 1345	13,-1,6 4,1-4,5 6,3-6,6 8,6
		0.70				(3a)				

Torque control travel a = 0,70 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed	Fuel deli high idle :	very characteristics 5a speed 5b	Idle	fuel delivery 6	Torque- travel	Control for
rev/min 1	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
LDA 1300	0,6 bar 86,0-88,0 (84,0-90,0)	1340-1350*	LDA 900	0,6 bar 86,0-89,0 (83,5-91,5)	100	115,0-125,0 = 20,0- 21,0 mm RW	600	12,1+0, 12,8+0, 12,6+0,
LDA 600	0,6 bar 83,0-86,0 (80,5-88,5)		LDA 600	0 bar 57,0-59,0 (55,0-61,0)				12,6+0,

Checking values in brackets

rev/min decreasing pressure – in bar gauge pressure increasing Test at n = 500 diminution Measurement Pump/governor Control rod traveldifference mm (1) bar Gauge pressure = Gauge pressure -12,8-12,9 10,6-10,7 12,2-12,3 11,0-11,2 PES6A..RS2714 +RQV..AB 1208-AL 0,60 0,40 0,25

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

-2-

FOR 6,6 f

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WPP 001/4 KHD 6,1 m

1. Edition

PES 6 A 95 D 410 RS 2715 Komb.-Nr. O 400 846 548 RQV 300-1250 AB 1158-1 L

supersedes-

company: KHD

engine: BF 6 L 913 140 kW/2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

85-2.05) mm (from BDC); RW = 9.0-12.0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	14,0+0,1	9,5-9,7	0,35(0,6)			
300	4,9-5,1	1,0-1,6	0,35(0,55)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 - 0 - 0 - 0	rev/min	Control rod (18	Intermediate Degree of deflection	rated sp	eed Control rod travel	Lower rated Degree of deflection	speed	Control rod	Sliding s	leeve travel
of control	rod travel mm 2		of control	rev/min 5	mm 4	of control lever	rev/min 8	mm 3	rev/min	mm 11
max. ca. 67				-	-	ca. 9	100 300 360-	min.6,5 4,9-5,1 420 = 2,0	300 600 900 1200 1400	0,8-0,9 3,6-3,9 5,2-5,4 7,8-7,9 10,2
						(3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil tern		Rotational-speed (2b) limitation intermediate speed			Starting Idle switchin		Torque travel	Control cod
rev/min	cm³/1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	
LDA 1250	0,7 bar 94,5-96,5 (92,5-98,5)	1290-1300*	LDA 500	0 bar 53,0-55,0 (51,0-57,0)	100	115,0-125,0 (112,0-128,0		

Checking values in brackets

KHD 6,1 m

- 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference		
	Gauge pressure = bar	Gauge pressure = bar	mm (1)		
PES 6 ARS 2715 + RQVAB 1158-1L	0,70	0 0,39 0,20	14,0-14,1 10,2-10,3 13,1-13,2 11,4-11,6		

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO

Test Specifications Fuel Injection Pumps 1 and Governors

40

WPP 001/4 IHC 7,6 c

4. Edition

company: IHC prince: DT 466 B 143,4 kW

0 403 446 132

PES 6 MW 100/320 RS 1103

RQV 350-1300 MW 43-1

1-5-3-6-2-4 je 60° DHK 1 688 901 016 207 + 3 bar

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed		95-4,15)	Difference	Control rod	Fuel delivery	Spring pre-tensioning
Acialional Speed	travel	Fuet delivery		travel	Fuel delivery	(torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
900	10,9+0,	1 9,55-9,75	0,35(0,6			
350 1300	5,7-5, 10,9+0,		0,35(0,5 0,65(0,7	5)		
500	9,4-9,		-,(-,-	ĺ		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
deflection of control	rev/min Control rod travel mm 2	Control rod travel mm rev/min 28	Degree of deffection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm 11
max.	8,0 1550	1440-1505 0-1,0				ca.13	100 350	min.9,0 5,7-5,8		
ca.61.5 ± 2,5	4,0	1470-1480				360 -700 ③a				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed 2b firmitation intermediate speed			Idle	fuel delivery 6	Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 900	0,9 bar 95,5-97,5 (93,5-99,5)		LDA 1300 LDA 500	96,5-100,5 (94,5-102,5 U bar) 350 220	16,0-20,0 (13,5-22,5) 280(210-290)	Locki Unloc	

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.85

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

IHC 7,6c

-2-

Pump/governor	Setting	Measurement	diminution Control rod travel- difference		
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .		
RS 1103 mit RQV MW 43-1	0,4	0,9 0 0,2	10,5-10,6 10,9-11,0 9,4-9,5 9,8-9,9		

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Notes:

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than n = 500 1/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 2.0 mm before shutoff.
- Checking freedom of movement of control rod: with idle set to n = 350 l/min; increase engine speed to n = 1000 l/min; then operate at idle n = 350 l/min; the previously set idle control-rod travel must be obtained to within ± 0.1 mm.

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 VOL 6.0 t

2. Edition

PES 6 MW 100/320 RS 1004 RSV 325-1050 MW 4/308-1

0 403 476 020

supersede 7.84 $_{company} \underline{Volvo}$ TD 60 D 112 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO

2,80-2,90 (2,75-2,95)

mm (from BDC)

RW = 9,0 - 12,0 mm

En

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Sprisig prestensioning (torque-control valve)
rev/min	mm 2	cm³/100 strokes	cm ³ / 100 strokes	mm 2	cm //100 strokes	mm 6
1020	10,8+0,1	8,65-8,85	0,35(0,6)			
325	4,9-5,0	1,0-1,4	0,35(0,55	}		
				ļ		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	r rated speed Control rod travel mm		Interme	diate rated	d speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	11 3 1	rque control Control rod travel mm 11
loose	800 x =	0,3-1,0 5,5				ca.26	325	4,3 4,9-5,0	350 500	11,2+0,1 10,8+0,1
ca.63	1130-1	100 = 9,8 160 = 4,0 0,3-1,7					450-51	0 = 2,0	1050	10,8+0,1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(4)	ull load stop	6 Rotational- speed limitat		uel delivery naracteristics	Starting tidle	uel delivery 5	(4a) 1d1	e stop
Test oil to rev/min 1	enip. 40°C (104°F) cm ³ /1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ¹ /1000 strokes 7	rev/min 8	Control rod travel mm
1020	86,5-88,5 (84,5-90,5)	1090-1100*			100 325	min.140 (137) 10,0-14,0 (7,5-16,5		4,9-5,0

Checking values in brackets

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 VOL 6.0 L

4. Edition

PES 6 MW 100/320 RS 1004 RQV 300...1400 MW 7 0 420 083 003

supersedes 5.82 company: Volvo TD 60 B

1 - 5 - 3 - 6 - 2 - 4 jc 60°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,80-2,90 (2,75-2,95)

mm (from BDC) RW = 10.5 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travei mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9,8 ^{+0,1}	7,55-7,75	0,35(0,6)			
300 1400	4,7-4,9 9,8+0,1	0,95-1,35	0,35(0,55 0,5(0,7))		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	4	Sliding s	leeve travel
deflection	rev/min Control rod travel	Control rod (1a) travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		0
lever	mm		lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min 10	mm 11
<u> </u>	2	3	 	5	6	 '	8	9	10	
max	1400	15,2-17,8				ca.9	100	min.6,3	300	1,3-1,4
	1650	0,0-1,0					300	4,7-4,9		2,6
<u> </u>		: 							1450	8,2
ca.63	8,8	1440-1450					390-4	450 = 2,0		
	4,0	1530-1560				(3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2 rev/min cm³/1000 strokes		Rotational-speed (2b) limitation intermediate speed rev/min (4a)	Fuel delivery characteristics (5a) high idle speed (5b) rev/min cm³/1000 strokes		Starting Idle switchir rev/min	ng point	Torque- travel	Control 5 Control rod travel mm
1	2	3	4	5	в	7	8	9
1000	75,5-77,5 (73,5-79,5)	1440-1450*	1400	79,0-83,0 (77,0-85,0)	100 300 100-2	120-130 (117-133) 9,5-13,5 (7,0-16,0) 30(80-250)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.85



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Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 VOL 6,0 m 1

4. Edition

SO ATO

PES 6 MW 100/320 RS 1004 RQV 300 ... 1400 MW 27 Komb.-Nr. 0 403 446 119 1-5-3-6-2-4 = 0-60-120-180-240-300 ± 0,50° (0,75°) supersedes 5.82 company: Volvo

engine: TD 60 B

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	· · · · · · · · · · · · · · · · · · ·	2,80-2,90 2,75-2,95)	mm (from BDC)	bei RW	= 9,0-12,0 mm	
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
100	9,9+0,1	7,7-7,9	0,35(0,6)			
300 1400	4,7-4,9	0,95-1,35	0,35(0,55 0,5 (0,7))		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed			Intermediate	e rated sp	eed	Lower rated	speed		Sliding	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	mm	1a) (2a)	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm (1)
1	2	3		4	5	6	7	8	9	10	11
max	1400 1650	15,2-17, 0,0-1,0					ca.9	100 300	min.6,3		
ca.62	8,9	1440-145 1530-156					(3a)	390-4	150 = 2,0		

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 2b timitation intermediate speed			Starting Idle switching	,)	Torque- travel	control 5	
rev/min	cm³/1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm	
1	2	3	4	5	6	7	8	9	
1000	77,0-7 9, 0 (75,0-81,0)	1440-1450*			100 300 100	(117,0-133,0)		

Chacking values in brackets

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 1HC 7.6 d

3. Edition

PES 6 MW 100/320 RS 1107 ROV 350-1200 MW 43-2

U 403 446 136

DHK: 1 688 901 016 207 + 3 bar

supersedes 9.83 company: IHC

DT 466 B 132,4 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Fuel injection test tubing 1 680 750 008

Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
800	11,8+0,1	9,4-9,6	0.25/0.5)	2	 	6
800	11,0+0,	9,4-9,0	0,35(0,6)			
350 1200 500	5,9-6,1 11,8+0,1 10,4+0,1	1,6-2,0	0,35(0,55 0,65(0,7)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated	speed		Intermedi	iate rated sp	eed	Lower rated	speed		Slidings	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm 2	travei	Degree o deflection of control lever	3	Control rad travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min	mm 11
max.	8,0 1500	1355-13 0-1,				ca.15	100 350	min.9,0 5,9-6,1		
ca.61,5	4,0	1375-138	5			370-650 39				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2 rev/min cm³/1000 strokes		limitation intermediate speed	(50)		idle switchir	ng point	travel	Control fod travel
rev/min	cm³/1000 strokes	rev/min 44	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
LDA 800	0,9 bar 94,5-96,5 (92,5-98,5)		LDA 1200 LDA 500	,9 bar 96,0-100,0 (94,0-102,0) 0 bar 70,0-72,0 (68,0-74,0)		140-180 (137-183) 16,0-20,0 (13,5-22,5) 280(210-290) 100(80)	Lock t Un loc	•

Checking values in brackets

Test at n = 500	rev/min decreasing pressure - in increasing	rev/min decreasing pressure - in bar gauge pressure increasing				
Pump/governor	Setting	Measurement	diminution Control rod travel- difference			
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .			
RS 1107 mit MW 43-2	0,39	0,17 0 0,90	11,5-11,6 10,7-10,8 10,4-10,5 11,8-11,9			

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than n = 500 l/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 2.0 mm before shutoff.
- Checking freedom of movement of control rod: with idle set to n = 350 l/min; increase engine speed to n = 1000 l/min; then operate at idle n = 350 l/min; the previously set idle control-rod travel must be obtained to within ± 0.1 mm.

WPP 001/4 IHC 7.6e

supersedes.

company: I HC

engine: 132,4 kW

En 3. Edition

stoil-ISO 47:3

PES 6 MW 100/320 RS 1108

RQV 350-1200 MW 43-3

0 403 446 137

DHK: 1 688 901 016/207+3 bar

Fuel injection test tubing 1 680 750 008

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
850	11,5+0,1	9,1-9,3	0,35 (0,6)		
350 1200 500	6,2-6,3 11,5+0,1 10,0+9,1	1,6-2,0	0,35 (0,5 0,65 (0,7			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Slidinos	leeve travel
	rev/min Control rod travel mm	Control rod travel mm rev/min 2a	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	8,0 0-1,0	1360-1400 1450				ca.17	100 350	min.9,0 6,2-6,3		
ca.60,! + 2,5	4,0	1380-1390				3a)	370-6	50		

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2 rev/min cm³/1000 strokes		Rotational-speed (2b) limitation intermediate speed rev/min (4a)	(30)		Starting fuel delivery 6 Idle switching point rev/min cm³/1000 strokes		Torque- travel	Control 5 Control rod travel
1	2	3	4	5	6	7	8	9
LDA 850	0,9 bar 91,0-93,0 (89,0-95,0)		LDA 500	0 bar 60,0-62,0	100 350 220-2 100	,	Lock 1 Un loc	-

Checking values in brackets

Test at n	=
·	

500

rev/min decreasing pressure - in bar gauge pressure

IHC 7,6e

-2-

Pump/governor	Setting	Measurement	diminution Control rod travel- difference		
	Gauge pressure = b	ar Gauge pressure = bar	mm (1) .		
RS 1108 mit MN 43-3	0,42	0,19 0 0,90	11,1-11,2 10,3-10,4 10,0-10,1 11,5-11,6		

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than n = 500 1/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 2.0 mm before shutoff.
- Checking freedom of movement of control rod: with idle set to n = 350 l/min; increase engine speed to n = 1000 l/min; then operate at idle n = 350 l/min; the previously set idle control-rod travel must be obtained to within ± 0.1 mm.

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 IHC 7.6f En 4. Edition

Testoil-ISO 4113

PES 6 MW 100/320 RS 1108 RQV 350-1300 MW 43-4 0 403 446 138

0 403 446 138 Prüfdüsenhalterkombination 1 688 901 016 Fuel injection test tubing 1 680 750 008 supersedes

company: IHC

engine: DT 466 B

154,5 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travei	Fuet delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
900	12,6+0,	10,7-10,9	0,35(0,6)			
350 1300 500	6,5-6,6 12,6+0,1 9,6-9,7		0,35(0,55 0,65(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed	•	Intermediate	rated sp	eed	Lower rated	speed	•	Slidino s	leeve travel
deflection	rev/min Control rod travel	Control rod ta	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
lever	mm	rev/min (2a)		rev/min	mm 4	lever	rev/min	mm 3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	8,0 0-1,0	1440-1505 1580				ca.16		min.9,0 6,5-6,6		
ca.61,5 + 2,5	4,0	1500-1510								
						(3a)	370-6	50		

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed (2b) limitation intermediate speed	THE COURSE OF CASE		Idle	fuel delivery 6	Torque- travel	Control rod
rev/min	cm ³ /1000 strokes	rev/min (4a)	rev/min cm³/1000 strokes rev/min cm³/1000 strokes		rev/min	travel min mm		
1	2	3	4	5	6	7	8	9
LDA 900 (0,9 bar 107,0-109,0 105,0-111,0)		LDA 1300 LDA 500		100 350 220-2 100	140,0-180,0 (137,0-183,0) 16,0-20,0 (13,5-22,5) B0 (210-290) (80)	Locki Unloc	-

Checking values in brackets

Testatn =

500

rev/min decreasing pressure – in bar gauge pressure

IHC 7,6f

-2-

Pump/governor	Setling	Measurement	diminution Control rod travel: difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
RS 1108 mit MW 43-4	0,27	0,57 0 0,90	10,4-10,5 11,9-12,0 9,6-9,7 12,6-12,7

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than n = 500 1/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 2.0 mm before shutoff.
- Checking freedom of movement of control rod: with idle set to n = 350 l/min; increase engine speed to n = 1000 l/min; then operate at idle n = 350 l/min; the previously set idle control-rod travel must be obtained to within ± 0.1 mm.

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 IHC 7,6 L

supersedes 8.83

company:

engine:

IHC

DT 466 B

143,5 kW

3. Edition

PES 6 MW 100/320 RS 1108 ROV 350-1300 MW 45 0 403 446 140

DHK: 1 688 901 016/207 + 3 bar

Fuel injection test tubing 1 680 750 008

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
3,0-3,10
Port closing at prestroke (2,95-3,15)

mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rav/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,7+0,1	9,55-9,75	0,35 (0,6)		
350	5,9-6,0	1,6-2,0	0,35(0,55)		
1300	11,7+0,1		0,65(0,7)			
500	9,0-9,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Sliding s	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rev/min 2a	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min 10	mm 11
max.	8,0 0-1,0	1440-1505 1550				ca. 14	100 350	min. 9, 5,9-6,0)	
ça.61,5	10,8 4,0	1360-1380 1475-1485								
						(3a)	380	-700		

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil tes		Time to appear Mail		Starting Idle switching		Torque- travel	Control rod	
rev/min	cm³/1000 strokes	rev/miŋ 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rav/min	travel mm
1	2	3	4	5	6	7	В	9
LDA 900	0,9 bar 95,5-97,5 (93,5-99,5)	1360-1380 *	LDA 1300 LDA 500	(97,5-105,5) 0 bar 52,5-54,5 (50,5-56,5)	305	140,0-180,0 (137,0-183,0 16,0-20,0 (13,5-22,5) 220(80-210)		

Checking values in brackets

rev/min increasing pressure - in bar gauge pressure

Test at n = 500	rev/min decreasing pressu)	re - in bar gauge pressure	IHC 7,6 L	
Pump/governor	Setting	Measurement	diminution Control rod travel- difference	
	Gauge pressure =	bar Gauge pressure ≂	tar mm (1) .	
RS 1108 mit MW 45	0,20		9,5-9,6	
		0,57 0 0,90	11,1-114 9,0-9,1 11,7-11,8	
				•
	·			

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

-2-

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than n = 500 1/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 2.0 mm before shutoff.
- Checking freedom of movement of control rod: with idle set to n = 350 l/min; increase engine speed to n = 1000 1/min; then operate at idle n = 350 1/min; the previously set idle control-rod travel must be obtained to within \pm 0.1 mm.

Test Specifications Fuel Injection Pumps (A) and Governors

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WPP 001/4 VOL 6,0 r

3. Edition

En

estoil-ISO 4:113

PES 6 MW 100/320 RS 1111 RSV 325-1400 MW 2 A 314 0 403 476 016 superseds 4.85 company Volvo engine TAMD 60 C 184 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,10-3,20 Port closing at prestroke (3,05-3,25)

 $^{mm (from BDC)}RW = 9,0-12,0$

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ¹ /100 strokes	cm ¹ / 100 strokes 4	mm 2	cm //100 strokes	mm 6
1000	13,0-0,1	12,1-12,3	υ,35 (0,6)			
325 1400	5,7-5,8 13,0+0,1	0,95-1,35	0,35(0,55)			
1000	10,5+0,1		0,5((0,7)			
1000	10,5+0,1		0,5((0,7)	·		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	er rated speed	rev/min	Intern	nediale rate	d speed	(4)	Lowe	er rated speed	(3) 10	orque control
Degree of deflection of control lever	effection control mm mm rev/min		4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800 x = 2	0,3-1,0 2,75				ca.22	325 325	5,1-5,2 5,6-5,7	500	13,5+0,1 13,0+0,1
ca.60 2a	1440- 1505-	1450 = 12,0 1535 = 4,0	•				100	min.19,	P	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load step		Speed william Characteristics			Starting fuel delivery 5 4a Idle stop				
rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm		
LDA 1000	0,8 bar 121,0-123,0 (119,0-125,0)	1440-1450*	LDA 1400 LDA 1000	83,0-85,0	100 325	130,0-140 127,0-143, 9,5-13,5 (7,0-16,0	D)	5,6-5,		

^{* 1} mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

VOL 6,0r

-2-

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
RS 1111 mit RSV3i4	0,3	0,53 0 0,80	10,7-10,8 12,7-13,0 10,5-10,6 13,5-13,1

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 IHC 7,6 n

2. Edition

のです

PES 6 MW 100/320 RS 1112 RQV 350-1300 MW 46

0 403 446 141

DHK 1 688 901 016/207 + 3 bar

Fuel injection test tubing 1 680 750 008

supersedes 9.83
IHC
company: DTI-466 C
engine 154.5 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,95-4,15)

mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	10,5+0,1	10,3-10,5	0,35 (0,6)			
350	5,4-5,5	1,8-2,2	0,35(0,59)		
1300	10,5+0,	1	0,65(0,6			
500	8,4+0,	1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed	•	Intermediate	rated sp	eed	Lower rated	speed		Slidina s	leeve travel
Degree of deflection of control lever	rev/min Control rod travel	Control rod travel mm (2a)	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	8,0 0-1	1440-1505 1600	ça. 20. - 2,5	5 2,0 8,0	595-605 435-465	ca. 14	100 350	min. 9,0 5,4-5,5		
ça.47,5 ± 2,5	4,0	1470-1480	•							
						(3a)	390-	450		

Torque control trave! a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed			Starting Idle switchir	,	Torque- travei	control 5
rev/min	cm³/1000 strokes	rev/min 48	rev/min cm³/1000 strokes r		rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 900	0,9 bar 103,0-105,0 (101,0-107,0		LDA 1300 LDA 500	0,9 bar 107,0-111,0 (105,0-113,0 0 bar 63,5-65,5 (61,5-67,5)) 350	RW 19-21 140-180 (137-183) 18,0-22,0 (15,5-24,5)		
					220-	280 (210-290 (80)	Lock Unlo	ing cking

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.85

BOSCH

Geschäftsbereich KH. Kundendienst. Kf2-Ausrüstung C by Robert Bosch GmbH. D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany Imprima en République Fédérale d'Allemagne par Robert Bosch GmbH.

Test at n =

500 rev/min decreasing pressure – in bar gauge pressure

IHC 7,6n

-2-

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	diminution Control rod travel- difference mm (1)
	Cauge pressure co.	Guogo prossoro	
RS 1112 mit MW 46	0,28	0,51 0 0,90	9,0-9,1 9,9-10,2 8,4-8,5 10,5-10,6

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than n = 500 1/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 2.0 mm before shutoff.
- Checking freedom of movement of control rod: with idle set to n = 350 1/min; increase engine speed to n = 1000 1/min; then operate at idle n = 350 1/min; the previously set idle control-rod travel must be obtained to within \pm 0.1 mm.

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 IHC 7.6r

1. Edition

Jestoil-ISO

PES 6 MW 100/320 RS 1112 ROV 350-1200 MW 46-3 0 403 446 163

DHK: 1 688 901 016/207 + 3 bar

Fuel injection test tubing 1 680 750 008

supersedes companyIHC engine: DTA-466 C 179 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 3.95-4.05

Port closing at pres	stroke (3,90-4,10)	mm (from BDC)			
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800 350 1200 500	12,4+0,1 6,2-6,3 12,4+0,1 10,7+0,1	1,8-2,2	0,35(0,6) 0,35(0,55 0,65(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Slidir	na si	leeve travel
deflection	rev/min Control rod travel	Control rod (la)	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel			0
lever	mm	rev/min (28)	iever	rev/min	mm (4)	lever	rev/min	mm (3)	16	in	mm
1	2	3	4	5	6	7	8	9	10		11
max.	8,0 0-1	1355-1395 1500				ca. 12		min. 9,0 6,2-6,3			
ca. 495	11,4	1260-1270									
± 2,5	4,0	1370-1380				300-450					
						(3a)					

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil te		Rotational-speed (2b) limitation intermediate speed	high idle s		switching point		Torque- travel	control 5 Control rod travel
1	2	3	4	5	8	7	8	9
LDA 800	0,9 bar 119,0-121,0 (116,5-123,5)	1260-1270*	LDA 1200 LDA 500	0,9 bar 121,5-125,5 (119,5-127,5) 0 bar 86,5-88,5 (84,5-90,5)	350			_

Checking values in brackets

IHC 7,6r -2-

Testatn =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting		Measurement	diminution Control rod travel difference
	Gauge pressure =	bar	Gauge pressure = ba	ar mm (1)
RS 1112 mit MW 46-3	0		0,22 0,44 0,90	10,7-10,8 11,1-11,2 12,0-12,1 12,4-12,5

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve position, first set locking device.
- In unlocked state do not run at greater than n = 500 1/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 2.0 mm before shutoff.
- High idle n = $1375 \text{ l/min. } 21.0 29.0 \text{ cm}^3 / 1000 \text{ strokes, } (20.0 30.0 \text{ cm}^3/1000 \text{ strokes) } 0.9 \text{ bar.}$

Test Specifications Fuel Injection Pumps ① and Governors

1. Edition

supersedes

engine:

company:THC

Er

ISO 4113

PES 6 MW 100/320 RS 1112 RQV 350-1200 MW 64 0 403 446 160

DHK; 1 688 901 016/207 + 3 bar

Fuel injection test tubing 1 680 750 008

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,95-4,05}{(3.90-4.10)}$ mm (from BDC) RW = 9 - 12 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	11,7+0,1	10,6-10,8	0,35(0,6)			
350 1200 500	5,9-6,0 10,9+0,1 10,6+0,1		0,35(0,55 0,65(0,7)	Ĭ		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed	•	Intermediat	e rated sp	eed	Lower rated	speed		Slidings	leeve travel
deflection of control	rev/min Control rod travel mm 2	Control rod (18 mm rev/min (2)	of control	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min	mm
max.	8,0 0-1	1355-1395 1450				ca. 11	100 350	min.9,0 5,9-6,0		
ça. 45,5 - 2,5	9,9 4,0					(3a)	370-	-450		

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter rev/min		limitation intermediate speed	Fuel delic high idle s rev/min	very characteristics 5a speed 5b cm³/1000 strokes	Starting fuel delivery 6 Idle switching point		Torque- travel	Control 5 Control rod travel
1	2	3	4	5	6	7	8	9
LDA 800	0,8 bar 106,0-108,0 (104,0-110,0)	1245-1255 *	LDA 1200 LDA 500	0,8 bar 101,0-103,0 (99,0-105,0 0 bar 84,0-86,0 (82,0-88,0)	350	140,0-180,0 (137,0-183,0 18,0-22,0 (15,5-24,5) 220 (80-210)	1200 1000	11,7+0, 10,9+0, 11,7+0, 10,9+0,

Checking values in brackets

Test at n =

500 rev/min decreasing pressure – in bar gauge pressure

IHC 7,6ri

-2-

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 1112 mit MW 64	0,23	0,35 0 0,80	10,9-11,0 11,3-11,6 10,6-10,7 11,7-11,8
·			

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than n = 500 l/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 2.0 mm before shutoff.
- Checking freedom of movement of control rod: with idle set to n = 350 l/min; increase engine speed to n = 1000 l/min; then operate at idle n = 350 l/min; the previously set idle control-rod travel must be obtained to within ± 0.1 mm.

Test Specifications Fuel injection Pumps 2 and Governors

40

WPP 001/4 KHD 12,7 t 1

3. Edition

<u>En</u>

estoil-150 4113

PE 8 MW 100/720 LS 1117 RQ 300/1000 MW 52 0 403 548 005 1-8-7-2-6-5-4-3 je 45° supersedes 1.85

company KHD
engine F 8 L 413 F
150 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.05-3.25)

mm (from BDC)

RW = 9.0-12.0 mm

		3,03-3,237			1(H = 5,0-	12,0 111111
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,4+0,1	10,1-10,3	0,35(0,6			
300	8,2-8,3	1,1-1,5	0,35(0,5)		
1000	11,3+0,1		0,5 (0,7	}		
<u> </u>						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG chec		Full-load s	•	•	cifications (4)	ldle spec	•		cifications (5)	Torque d	control (3)
	Control rod travel mm	rev/min 3	Control rod travel rmm 4	Control red travel rom	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel	rev/min	Control rod travel
520	19,2-20,8	520	20,0	10,3	1045-1060	300	8,2	100	min.10,2	600	12,4-12,5
1200	0-1,0			4,0	1080-1110			300	8,2-8,3	1000 650 975	11,3-11,4 12,4-12,5 11,3-11,4

Torque-control travel on flyweight assembly dimension a

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop (3a)	Fuel deliv	ery characteristics I	Starting fuel delivery Idle speed			
rev/min	cm ³ /-1000 strokes 2	rev/min	rev/min	cm ² /-1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes / mm		
600	101,0-103,0 (99,0-105,0)		1000	91,0-93,0 (88,5-95,5)	100 300 100-2	130,0-140,0 (127,0-143,0) 11,0-15,0 (8,5-17,5) 30(80-250)		

Testoil-ISO 4113

40

WPP 001/4 KHD 12,7 t

3. Edition

En

PE 8 MW 100/720 LS 1117 RQ 300/1000 MW 52-1 0 403 548 009 supersedes 1.85
company: KHD
engine F 8 L 413 FZ

1-8-7-2-6-5-4-3 je 45°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,10-3,20 (3,05-3,25)

mm (from BDC)

RW = 9,0-12,0 mm

Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm 6
650	12,6+0,1	10,6-10,8	0,35(0,6)		3	
300	8,1-8,2	1,1-1,5	0,35(0,55)		
1150	12,6+0,1	·	0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	~	Full-load s	•	•	\sim	tdle spec Setting p	-		cifications (5)	Torque o	control (3)
rev/min	Control rod travel mm 2	rev/min 3	Control rod travel mm	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod (travel)
550	19,2-20,8	550	20,0	10,4	1195-1210	300	8,1	100	min.9,7	650	12,6-12,7
1350	0-1,0			4,0	1270-1300				8,1-8,2 380 = 2,0		11,4-11,5 12,0-12,4

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop (3a)	Fuel delive	ery characteristics	, i sur apaca			
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes / mm		
650	106,0-108,0 (104,0-110,0)		1150	96,0-98,0 (93,5-100,5)	100	130,0-140,0 (127,0-143,0)		
					300	11,0-15,0 (8,5-17,5)		
				•	100-2	30(80-250)		

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 KHD 12,7 t 2

3. Edition

supersedes 85

company KHD engine BF 8 L 413 FZT

206 kW

PE 8 MW 100/720 LS 1117 RQ 300/1150 MW 53 0 403 548 006 1-8-7-2-6-5-4-3 0-45-90-135-180-225-270-315

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

 $(3,0\xi-3,25)$

mm (from BDC)

RW = 9-12 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel dei,∞ery cm³/100 strok. s 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	13,3+0,	1 12,3-12,5	0,35(0,6			
300 1150 400	7,5-7, 12,3+0, 12,4+0,	1	0,35(0,5 0,5(0,7	5))		
		,				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	~	Full-load s	•	•	cifications (4)	Idle spec	•		cifications (5)	Torque (control (3)
rev/min	Control rod travel mm 2	rev/min 3	Control rod travel rnm 4	Control rod travel rnm 5	rev/min 6	rev/min 7	Control rod travel rnm 8	rev/min 9	Control rod travel mm	rev/min	Control rod travel mm
600	19,2-20,8	60Q	20,0	11,3	1195-1210 1230-1260		7,5	100 300	min.9,1 7,5-7,6	800 1150 650	13,3-13,4 12,3-12,4 13,3-13,4
1350	0-1,0										.3,3 13,

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop (3a)	Fuel deliv	ery characteristics (3b)	Starting f	uel delivery d Control
rev/min	cm³/-1000 strokes 2	rev/min 3	rev/min	cm³/-1000 strokes 5	rev/min 6	red travel cm ³ /1000 strokes / mm 7
LDA 800	0,8 bar 123,5-125,5 (121,5-127,5)		LDA 1150 LDA 400	0,8 bar 118,0-120,0 (115,5-122,5) 0 bar 96,0-98,0 (93,5-100,5)	100 300 100- 230	140,0-150,0 (137,0-153,0) 11,0-15,0 (8,5-17,5) (80-250)

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

KHD 12,7t

-2-

300			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = ba	r Gauge pressure = bar	mm (1) .
LS 1117 mit MW 53	0,8	0,19 ° 0,13 0	13,3-13,4 13,0-13,1 12,6-12,7 12,4-12,5

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 13,4d1

1. Edition

En

toil-ISO 4113

PE 8 MW 100/720 LS 1117 RQV 425-900 MW 66 0 403 548 013 1-8-7-2-6-5-4-3 je 45° supersedes company KHD
engine FS L 513 0 PT.
153 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm³/ 100 atrokes 4	mm 2	cm ³ /100 strokes 3	mm 6
900	11,1+0,1	10,7-10,9	0,35(0,6)		
425	5,0-5,1	1,3-1,7	0,35(0,55)		
	,					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated :	speed		Intermediate	rated sp	eed	Lower rated	speed		Slidings	leeve travel
Degree of deflection of control lever	rev/min Control rod travel	travel	िक्य ree of ' सम्बद्धाः ction ्य = antrol		Control rod travel	Degree of deflection of control		Control rod travel		1
1	mm 2	3	14	rev/min 5	mm (4)	lever 7	rev/min 8	mm (3) 9	rev/min 10	mm 11
max	900 1150	15,2-17,8 0-1,0				ca.22	425 100	5,0-5,1 min.7,5		
ca.31	10,1 4,5	940-950 986-1010				450-750			_	

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deli- high idle s	very characteristics (5a)	Idle	fuel delivery 6	Torque travel	control 5
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
900	107,0-109,0 (105,0-111,0)	940-950 *	550	108,0-110,0 (106,0-112,0		130,0-140,0 (127,0-143,0 13,0-17,0 (11,0-20,0)	550	11,7+0, 11,6+0, 11,3+0,

Checking values in brackets

* 1 mm less control rod travel than cot. 2

Note: Test elec. unlocked starting fuel delivery (EES) with 24 Volts.

12.85

2

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 KHD 13,4a

2. Edition

4113

R 0 1

PE 8 MW 100/720 LS 1117 RQ 300/1075 MW 53-1 U 403 548 008 1-8-7-2-6-5-4-3 je 45° company KHD

engine: BF 8 L 513 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3, 10-3, 20 (3.05-3.25)

mm (from BDC) RW = 9-12 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600 300 1075 400	13,4+0,1 8,0-8,1 12,1+0,1 12,6+0,1	1,6-2,0	0,35(0,6) 0,35(0,55 0,5(0,7))	·	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ck Control rod	Full-load : Setting po	•	Test spec	cifications (4)	Idle spec	point		cifications 5	Torque o	(3
rev/min	travel	rev/min 3	rod travel mm	Control rod travel mm 5	rev/min 6	rev/min 7	Corarel red travel mm 8	rev/min 9	Control rod travel mm	rev/min	Control rod travel mm 12
550	19,2-20,8	550	20,0	11,1 4,0	1120-1135 1355-1185			100 300	min. 9,6 8,0-8,1		13,4-13,5 13,4-13,5
1250	0-1,0				,					950	12,1-12,2 12,1-12,2

Torque-control travel on flyweight assembly dimension a =

0,45

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control fever np. 40°C (104°F)	Control rod stop (3a)	Fuel deliv	ery characteristics	Starting f	
rev/min	cm³/-1000 strokes	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min 6	Control (od travel cm ³ /1000 strokes / mm
LDA 600	0,8 bar 123,5-125,5 (121,5-127,5)		LDA 1075 LDA 400	0,8 bar 114,0-116,0 (111,5-118,5) 0 bar 96,0-98,0 (93,5-100,5)	100 300	140,0-150,0 (137,0-153,0) 16,0-20,0 (13,5-22,5) 100-230 (80-250)

Test at n = rev/min decreasing pressure - in bar gauge pressure

KHD 13,4d

-2-

Pump/governor	Setting	Measurement	diminution Control rod traveldifference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
LS 1117 mit MW 53-1	o l	0,8 0,25 0,19	12,6-12,7 13,4-13,5 13,2-13,3 12,8-12,9

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 KHD13,4 a

3. Edition

PE 8 MW 100/720 LS 1118 kQV 300-1150 MW 56 **-** 0 403 548 007 1-8-7-2-6-5-4-3 je 45°

supersedes 10.84

company: KHD

BF 8 L 513 engine.

222 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

mm (from BDC)

RW = 9.0 - 12.0 mm

Rotational speed	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
700	14,2+0,1	13,3-13,5	0,35(0,6)		3	6
300 1150 450	8,7-8,8 13,6+0,1 13,2+0,1	1,6-2,0	0,35(0,55 0,5(0,7))		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated :	Upper rated speed Intermediate rated speed					Lower rated	speed		Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rev/min 2a	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3	rev/min	0
max.	1175 1400	15,2-17,8 0-1,0				ca.22	300	6,7-6,8		
ca. 55	12,6 4,0					320-650 ③				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed (2b) limitation intermediate speed	(30)		Starting Idle switchir	, 0	Torque travel	Control od
rev/min	cm ³ /1000 strokes	rev/min 48	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
LDA 700	0,8 bar 133,0-135,0 (131,0-137,0		LDA 1150 LDA 450	0,8 bar 129,0-131,0 (126,5-133,5) 0 bar 104,0-106,0 (101,5-108,5)	300	140,0-150,0 (137,0-153,0) 16,0-20,0 (13,5-22,5) 230(80-250)	1150 750	14,2+0, 13,6+0, 14,2+0, 13,6+0,

Checking values in brackets

* 1 mm less control rod travel than col 2

12.85

Test at n = rev/min decreasing pressure - in bar gauge pressure

KHD 13,4a -2-

300			
Pump/governor	Setting	*1easurement	diminution Control rod travel- difference
	Gauge pressure =	bar Gauge pressure =	bar mm (1)
LS 1118 mit			
MW 56	0,36	2.26	13,9-14,0
	1	0,26	13,4-13,7
		0	13,2-13,3 14,2-14,3
		0,80	14,2-14,3
	}		
			'
		ĺ	}

Notes.

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 KHD 6,1n6

1. Edition

supersedes

companKHD

engine: BF 6 L 913 BW

124 kW

PES 6 MW 100/720 RS 1133 RQ 300/1325 MW 65 0 403 446 166 1-5-3-6-2-4 je 60°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 3,50-3,60 mm

mm (from BDC)QW = 9-12 mm

- -	(3	,45-5,05)		W = 3-12	_11101	
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1325	10,5+0,1	9,6-9,8	0,35(0,6			
300 850 500	7,6-7,7 10,5+0,1 9,1-9,2		0,35(0,5) 0,35(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG che	Control rod travel	Full-load s Setting po rev/min 3	•	-	rev/min	Idle spec Setting p rev/min 7	Control rod travel		cifications 5 Control rod travel mm	 Control rod (3) travel mm
700	19,2-20,8	700	20,0		1375-1385 1445-1475			100 300	min.8,2 7,6-7,7	
1550	0,1-1,0								320-450	

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever emp. 40°C (104°F)	Control rod stop	Fuel delivery characteristics		Starting I	tuel delivery 6
rev/min	cm³/-1000 strokes	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min	rod travel cm ³ /1000 strokes / mm 7
LDA	0,7 bar	100	LDA	0,7 bar	100	120,0-140,0
1325	96,0-98,0		850	87,0-91,0		(117,0-143,0)
	(94,0-100,0)			(85,0-93,0)		
			LDA	0 bar	300	10,0-14,0
			500	47,0-49,0 (45,0-51,0)		(8,0-16,0)

Checking values in brackets

12.85

`ump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
RS 1133 mit			
RQMW 65	0,45		10,2-10,3
		0,35	9,3-9,6
		0	9,1-9,2
		0,70	10,5-10,6

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Note: Test elec. unlocked starting fuel delivery (EES) with 24 Volts.

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 IHC7,6 r7 1. Edition

PES 6 MW 100/320 RS 1134 ROV 350-1200 MW 46-1

7 0 403 446 161 DHK: 1 688 901 016/207+3 bar

Fuel injection test tubing 1 680 750 008

supersedes company: IHC engine:

DTA 466 (172 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	12 90-3 10)	mm (from BDC) RW = 9-12 mm							
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6				
800 350 1200 500	13,2+0,1 6,8-6,9 13,2+0,1 10,2+0,1	1,8-2,2	0,35(0,6) 0,35(0,55 0,65(0,7))						

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Slidings	Sliding sleeve travel	
deflection	rev/min Control	Control rod (1a)	Degree of deflection		Control rod travel		Ì	Control rod travel		1	
lever	rod travel mm	rev/min (2a)	of control lever	rev/min	mm (4)	of control lever	rev/min	mm (3	rev/min	mm	
1	2	3	4	5	6	7	8	9	10	11	
max.	8,0 0-1	1355 1460				ca.13	100 350	min.9,0 6,8-6,9			
ca.47,5 + 2,5	12,2 4,0	1250-1260 1395-1405				370-500					
						(3a)					

Torque control travel a =

mm

C. Settings for Fue! Injection Pump with Fitted Governor

Full-load d		limitation high idle speed			characteristics 58 Starting fuel delivery idle switching point			control 5
rev/min		rev/min 4a	rev/min cm³/1000 strokes		ļ	cm ³ /1000 strokes	rev/min 8	Control rod travel mm
LDA 800	0,7 bar 120,5-122,5 (118,5-124,5)	1250-1260*	LDA 1200 LDA 500	0,7 bar 125,5-129,5 (123,5-131,5) Obar 65,5-67,5 (63,5-69,5)	100 350	140-180 (137-183) 18,0-22,0 (15,5-24,5) 20 (80-210)		

Checking values in brackets

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

IHC 7,6r7

-2-

Pump/governor	Setting		Measurement		diminution Control rod travel- difference
	Gauge pressure =	bar	Gauge pressure =	bar	mm (1) .
RS 1134 mit MW 46-1	0				10.2.10.2
MM 40-1	U		0,24 0,52		10,2-10,3 10,9-11,0 12,5-12,6
			0,70		13,2-13,3
			·		·

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than n = 500 l/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 2.0 mm before shutoff.
- Checking freedom of movement of control rod: with idle set to n = 350 l/min; increase engine speed to n = 1000 l/min; then operate at idle n = 350 l/min; the previously set idle control-rod travel must be obtained to within ± 0.1 mm.

40

WPP 001/4 IHC 7,6r6 En 1. Edition

1-1SO 4113

PES 6 MW 100/320 RS 1134 RQV 350-1200 MW 46-2

0 403 446 162

DHK: 1 688 901 016/207+3 bar

Fuel injection test tubing 1 680 750 008

supersedescompany. IHC DTA 466 C engine: 156 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,95-3,05
Port closing at prestroke (2,90-3,10) mm (from BDC)

Rotation rev/min 1	nal speed	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800 350 1200 500)	12,2+0,1 6,3-6,4 12,2+0,1 10,0+0,1	1,8-2,2	0,35(0,6) 0,35(0,55 0,65(0,7))		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	Upper rated speed			rated sp	eed	Lower rated	speed		Slidings	leeve travel
deflection	rev/min Control rod travel	Control rod (1a)	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Silding S	1
1.	mm	rev/min (28)		rev/min	mm 4	lever	rev/min	mm 3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	8,0 0-1	1355-1395 1460				ca.17		min 19 6,3-6,4		
ca.48,5 + 2,5		1255-1265 1370-1380				370-500				
						3a				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2				Idle	fuel delivery 6	Torque-	control 5	
rev/min 1	cm³/1000 strokes	rev/min 4a	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	travel mm 9
LDA 800	0,8 bar 106,0-108,0 (104,0-110,0)	1255-1265*	LDA 1200 LDA 500	0,8 bar 110,5-114,5 108,5-116,5) 0 bar 67,5-69,5 65,5-71,5)	100 350 220-2	140-180 137-183) 18;9-24;9) 280 (210-280)	Lock Unlo	•

Checking values in brackets

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

IHC 7,6r6

-2-

Pump/governor	Setting	Measurement	diminution Control rod travel- difference			
	Gauge pressure = bar	Gauge pressure = bar	mm (1)			
RS 1134 mit MW 46-2	0,24	0,45 0 0,80	10,5-10,6 11,6-11,9 10,0-10,1 12,2-12,3			

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

- Set pump only with original overflow valve and IH hose with 1.2 mm diameter restriction.
- Before checking the sleeve, first set locking device.
- In unlocked state do not run at greater than n = 500 1/min.
- Set low idle at stop screw.
- Set shutoff stop to 1.5 2.0 mm before shutoff.
- Checking freedom of movement of control rod: with idle set to n = 350 l/min; increase engine speed to n = 1000 l/min; then operate at idle n = 350 l/min; the previously set idle control-rod travel must be obtained to within ± 0.1 mm.

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 FIA 13,8 V

1. Edition

PE 6 P 120 A 720 RS 167

RSV 350-750 P 7/377 R

supersedes =

Komb.-Nr. 9 400 097 201

Fiat company 8210

Values only apply to test nozzle-and-holder assembly 0 681 443 022 and fuel-injection test tubing 1 680 750 026

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0-2,1(1.95-2.15)

mm (from BDC)

Rotational speed rev/min	Control rod travel	Fuel delivery cm1/100 strokes	Difference cm ⁻¹ / 100 strokes	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
730	11,8+0,1	16,4-16,6	0,6 (1,05)			
			1			
	Ì					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	1 Upper rated speed rev/min			Intermediate rated speed (4) Lower rated speed (3) Torque control					rque control	
Degree of deflection	Control rod travel	Control rod travel				Control- lever		Control rod travel		Control rod travel
of control lever	mm 2	mm rev/min	4	5	6	deflection in degrees 7	rev/min 8	mm 9	rev/min 10	mm 11
ca. 48	750 780	16,0 11,6	without auxiliar			ca. 27	350	7,5	730	0
	810	6,2	sprin	. r	y	350 380 430 500	7,3-7,7 4,4-6,2 0,7-3,0 0-1,0	500 400	1,2-1,8	
(2a)	800 830 860 910	5,6-10,0 3,0-5,8 0,6-2,8 0-1.0	I .	with auxiliary spring						

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop					Starting I	Starting fuel delivery 5 4a Idle stop			
	emp 40°C (104°F) crift/1000 strokes 2	Note changed to) rev/min	rev/min	cm ³ /1000 strokes 5	rev/min	cm ¹ /1000 strokes 7	rev/min	Control rod travel mm	
730	164,0-166,0 (160,0-170,0)	-	-	-	100	270,0-300, =19,0-21,0 mm RW	0 ~	-	

Checking values in brackets

Testoil-150

WPP 001/4 MWM 39.8 b

3. Edition

PE 6 P 120 A 300/3 LS 267 (3) PE 6 P 120 A 300 LS 330

Port closing at prestroke

(2) PE 6 P 120 A 320 LS 268 RSUV 300-750 P 9 A 332/1 R

mm (from BDC)

supersedes 7.83 company. engine:

Südbremse D/TD/TBD 602 V 12

TBD 602 V 12 S

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Komb.-Nr. 0 401 806 046 (1) 0 401 876 214 (2)

> Spring pre-tensioning (torque-control valve)

0 401 816 052 (3)

RW = 21,0 mm

Fuel delivery

cm³/100 strokes

A. Fuel Injection Pump Settings

· · · · · · · · · · · · · · · · · · ·		(2,25-2,45)		KW :
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm
1	2	3	4	2
700	13,0+0,1	26,0 - 26,4 (25,7 - 26,7)	0,5 (0,9)	
300	5,5-5,7		0, 8 (1,2)	
Values only	apply t	p test nozzle-a	nd-holder	assembly

1 688 901 019 and flel-injection test tubing 1 680 750 074.

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated speed		Intermediate	e rated spe	rated speed 4 Lower		r rated spe	ed	3 Torque control		
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.29	300	5,1		13,0+0,1
	X =	5,25					100	C C C 7		14,2+0,6 13,0+0,1
ca.70	12,0 4,0 980	790 - 800 815 - 845 0,3 - 1,7					315 - 37	5,5-5,7 5=2,0 mm		

The numbers denote the sequence of the tests

without (1 u. 3) and

C. Settings for Fuel Injection Pump With Fitted Governor

(2) (2) Full-toad stop (6) Rotational-(5a) Idle stop Starting Fuel delivery speed limitat. characteristics Test oil temp. 40°C (104°F) Note: Control rod changed to ... travel c**xxxxxxxxxxxx** 7 mm RW rev/min cm³/1000 strokes cm³/1000 strokes rev/min 100 19,5-21,0 The full-load delivery is adjusted on the engine in accordance with the engine inspection sheet. Pumps (1) and (2) or (1) and (3) operate in tandem.

Checking values in brackets

WPP 001/4 VOL 10,0 f 2

3. Edition

PE 6 P 110 A 320 RS 273 Y .. RS 273-1 Y

RQV 250-1100 PA 238/2 R

company: Volvo engine: TD 100 B 220 kW

0 401 846 379

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,6 - 2,7 (2,55-2,75) mm (from BDC)

Rotational speed rav/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,0+0,1	14,8 - 15,1	0,4(0,8)			2,5 ⁺ 0,1 (2,2 - 2,9)
250	5,1-5,3	1,1 - 1,5	0,3(0,6)			(2,2 - 2,9)
				-		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed		Intermediate	rated sp	eed	Lower rated	speed		Slidings	leeve travel
deflection	rev/min Control rod travel mm		Degree of deflection of control lever	rev/mɨn	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	
1	2	3	4	5	6	7	8	9	10	11
max.	1260	15,2-17,8	-	-	-	ca.11		min.6,6 5,1-5,3	600	1,7-2,3 3,7-4,3
ca.40	9,0 4,0 1350	1140-1150 1225-1255 0 - 1,0					310-3	70=2,0 mm	1290	8,8
						(3a)	<u> </u>			

Torque control travel a =

mn

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro- Test oil ten rev/min		Rotational-speed 2b limitation intermediate speed rev/:nin 4a	high idle s	cm ³ /1000 strokes	ldle switchii	fuel delivery 6 ng point mm RW KNXKKKKKKX	Torque- travel rev/min	Control 5 Control rod travel mm
LDA 700	0,7 bar 1 47,5 - 150,5 (145,0 - 153,0		LDA 700	0 bar 111,0-115,0 (108,0-118,0)		20,5-21,0	-	-

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator VOL 10.0 f 2

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6PRS 273 Y +PA 238/2R	0,7		10,0 - 10,1
7 (11.11. 200, 21.1		0	8,2 - 8,3
		0,40	9,6 - 9,7
		0,20	8,7 - 8,9
			'

Notes

(1) whea n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 KHD 40,5 f

1. Edition

PE 8 P 130 A 920/5 RS 293-2 RS 250/1000 P 1 A 422 R 1 - 6 - 4 - 5 - 8 - 3 - 2 - 7 $0 - 75 - 90 - 120 - 210 - 225 - 315 - 345^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$ Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067 All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes. company KHD engine BA 16 M 816

Komb.-Nr. 0 401 878 117

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,95-2,15)

mm (from BDC) RW = 9,0-12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ¹ /100 strokes	cm ⁻¹ / 100 strokes 4	mm 2	cm ¹ /100 strokes	mm 6
750	13,5+0,1	35,8-36,1	0,6(1,0)			
250	6,1-6,3	2,0-2,6	1,0(1,4)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

1) Uppe	r rated speed		Intermed	diate rated	speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	H ca.23	250	6,2	1000	13,5-13,6
VH ca.5	X =	5,0					400-46	0=2,0	420	14,7-15,3
FH max.	12,5	1040-1050						٠	600	13,5-13,6
(2a)	4,0 1260	1095-1125 0,3-1,4				50-200				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull load stop emp 40°C (104°F)	6 Rotational- speed limitat		iel delivery paracteristics	Starting f	uel delivery 5	4a) Idle stop	
rev/min	cm1/1000 strokes	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ² /1000 strokes 7	rev/min 8	Control rod travel mm 9
Carry adjus	out tment on engine	1040-1050*	-	-	. -	-	-	-

Checking values in brackets

WPP 001/4 KHD 30,4 a

2. Edition

PE 12 P 120 A 920/5 RS 294

RSUV 300-750 P 9 A 322 R

1-10-5-7-2-11-6-8-3-12-4-9 je $30^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

supersede 6.83 company KHD

engine BA 12 M 816

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

Komb.-Nr. 0 401 870 049

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0-2,1 (1,95-2,15)

mm (from BDC; RW = 9,0-12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ¹ /100 strokes	cm ¹ / 100 strokes 4	mm 2	cm 1/100 strokes	mm 6
600	12,0+0,1	20,1-20,3	0,5(0,9)			
300	5,8-6,0	1,0-1,6	0,65(0,95			

Adjust the fuel delivery from each outlet according to the values in E

B. Governor Settings

Degree of deflection of control lever	Control rod travel mm	control rod travel mm rev/min	Interme	ediate rate	ed speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca. 31	300	7,5	750	12,0-12,1
	Χ =	4,0	ļ				300	7,9-8,1	450	12,0-12,1
ca. 68	4,0	770-780 810-840 0,3-1,7					340-40	0=2,0	325	13,2-13,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

49	emp 40°C (104°F)	Rotational- speed limitat		uel delivery naracteristics	Starting Idle	fuel delivery 5	(4a) ld	le stop
rev/min	cm // 1000 strokes	changed to) rev/min 3	rev/min 4	cm ¹ /1000 strokes	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm
Not kr adjus	own. Carry out ment on engine	770-780*	-		-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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WPP 001/4 KHD 30,4f 2. Edition

PE12 P120 A920 RS 294

RSUV 300-1000 POA 348 R

company BA 12 M 816

1-10-5-7-2-11-6-8-3-12-4-9- je $30^{\circ} \div 0.5^{\circ} (\div 0.75^{\circ})$

Komb.-Nr. 0 401 870 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

estol-150 4113

2,0-2,10 (1.95-2.15) $_{mm (from BDC)}$ = RW 9,0 - 12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fue! delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ¹ /100 strokes	cm ¹ / 100 strokes 4	mm 2	cm ¹ /100 strokes	mm 6
750	14,9+0,1	31,0-31,4	0,5 (0,9)			
300	6,3-6,5	2,2-2,8	0,65(0,9)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm		Interme	ediate rate	d speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	I(3)	rque control Control rod travel mm
loose ca. 60	X=1 13,9 1 4,0 1	0,3-1,0 1,0 1040-1050 1060-1090 0,3-1,7	-	_	-	ca.18	300 300 325-385	5.9 6,3-6,5 = 2,0	1000 270 400	14,9-15,0 16,2-16,8 14,9-15,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	oll-load stop	Rotational speed limitat		iel delivery aracteristics	Starting f	uel delivery 5	4a) Idle stop		
Test oil to	emp 40°C (104°F) cm1/1000 strokes	Note changed to) rev/min 3	rev/min	cm³/1000 strokes	rev/min	cm½1000 strokes 7	rev/min 8	Control rod travel mm	
	own. Carry out tment on engine		-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

WPP 001/4 KHD 30,4 d

2. Edition

PE 12 P 120 A 920 RS 294

RS 250/1000 P 1/422 R

supersede 6.83

1-10-5-7-2-11-6-8-3-12-4-9 je $30^{\circ} - 0.5^{\circ} (-0.75^{\circ})$

company KHD BA 12 M 816

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

Komb.-Nr. 0 401 870 060

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0-2,1 (1,95-2,15)

mm (from BDC)

RW = 9.0 - 12.0 mm

Rotational speed	ed travel		Difference cm ¹ /	Control rod travel	Fuel delivery	Spring pre tensioning (torque-control valve)
rev/min 1	mm (2)	cm1/100 strokes	100 strokes 4	mm 2	cm //100 strokes	mm 6
750	14,9+0,1	29,5-29,9	0,5(0,8)			
300	6,0-6,2	2,0-2,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	effection travel travel mm rev/min		Interme	diate rated	speed	Control- lever deflection in degrees	Lower rated speed Control rod travel rev/min mm		Torque control Control rod travel rev/min	
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	_	-	ca. 22	250	6,1	1000	14,9-15,0
	X =	5,0					250	6,0-6,2	420	16,2-16,8
ca. 58	13,9	1040-1050					430-49	0=2,0	550	14,9-15,0
(2a)	4,0 1250	1120-1150 0,3-1,7			i	150-200				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b) Fu	II-load stop	6 Rotational- speed limitat		uel delivery paracteristics	Starting t	uel delivery 5	(4a) Idi	e stop
	emp 40°C (104°F) cm ^{1/1} 1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ¹ /1000 strokes	rev/min 8	Control ro travel mm
lot kr djust	own. Carry out ment on engine	1046-1050*	-	-	-	-	-	-
			! ;					

Checking values in brackets

40

WPP 001/4 KHD 30,4 k

1. Edition

PE 12 P 130 A 920 RS 294-1

RSUV 300-600 P 8 A 322 R

1-10-5-7-2-11-6-8-3-12-4-9 je $30^{\circ} \div 0.5^{\circ} (\div 0.75^{\circ})$

supersede.>- company KHD

Values only apply to test nozzle-and-holder assembly

engine BA 12 M 816

1 688 901 019 and fuel-injection test tubing 1 680 750 067

Komb.-Nr. 0 401 870 076

All lest specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,95-2,15)

mm (from BDC) RW = 9,0-12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ¹ /100 strokes	tm ¹ / 100 strokes	mm 2	cm / 100 strokes	mm 6
600	13,5+0,1	35,8-36,1	0,6(1,0)	-	3	
300	6,1-6,3	2,0-2,6	1,0(1,4)			

Adjust the fuel delivery from each outlet according to the values in \square

B. Governor Settings

	r rated speed	d rev/min	Interme	ediate rated	speed	4	Lower	rated speed	Torque control	
Degree of deflection of control	travel mm	travel				Control- lever deflection	rev/min	travel	rey/min	travel
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 30	300	5,7	600	13,5-13,6
	X =	4,0					300	6,1-6,3		14,7-15,3
ca. 65	12,5 4,0	640-650 655-685					310-37	0=2,0	350	13,5-13,6
	820	0,3-1,7			_					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

9	ill-load stop	6 Rotational- speed limitat	11301	uel delivery paracteristics	Starting t	fuel delivery 5	4a) (d)	4a Idle stop		
Test oil te rev/min 1	emp 40°C (104°F) cm // 1000 strokes	Note. changed to) rev/min	rev/min	cm³/1000 strokes	rev/min	cm ¹ /1000 strokes	rev/min	Control rod travel mm		
Not kr adjust	own. Carry out ment on engine	640-650*	-	-	-	-	-	-		

Checking values in brackets

* 1 mm less control rod travel than col 2

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WPP 001/4 KHD 15,2 c 2. Edition

En

PE 6 P 120 A 420 LS 324

RS 250/1000 P 1/422 R

supersedes 6.83

company KHD

Komb.-Nr. 0 401 876 221, 0 401 876 217 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

BA 6 M 816 engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Purt closing at prestroke

Testoil-ISO

2,0-2,1 (1,95-2,15)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm³/100 strokes	cm ¹ / 100 strokes	mm	cm1/100 strokes	mm
1	2	3	4	2	3	6
750	14,9+0,1	29,5-29,9	0,5(0,9)			
250	6,0-6,2	2,0-2,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

1 Uppe	r rated speed	l rev/min	Interm	ediate rate	d speed	4	Lower	rated speed	(3) 10	rque control
Degree of deflection	Control rod travel	Control rod travel			1	Control- lever		Control rod travel		Control rod travel
of control lever	mm 2	mm rev/min	4	5	6	deflection in degrees 7	rev/min 8	mm 9	rev/min	mm 11
loose	800	0,3-1,0	-		-		250	6,1	1000	14,9-15,0
		5,0					250-3 1 0	= 2,0	420 550	16,2-16,8 14,9-15,0
H voll		1040-1050 1105-1135 0,3-1,7				150-200		`		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(49)	ill-load stop	6 Rotational- speed limitat		uel delivery naracteristics	Starting !	luel delivery 5	4a) Idle stop	
rev/min	cm //1000 strokes	Note changed to) rev/min 3	rev/min	cm ¹ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min	Control rod travel mm
Not kr adjus	nown. Carry out ment on engine	1040-1050*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

40

WPP 001/4 KHD 15,2 b 2. Edition

<u>En</u>

PE 6 P 120 A 420 LS 324

RSV 250-1000 P7A 304 R

supersedes 6.83

Komb.-Nr. 0 401 876 226

company KHD

Values only apply to test nozzle-and-holder assembly

engine BA 6 M 816

1 688 901 019 and fuel-injection test tubing 1 680 750 067

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO

2,0-2,1 (1,95-2,15)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

mm (from BDC)

eed travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
/min mm	2 cm ¹ /100 strokes	cm ¹ / 100 strokes	mm	cm 1/100 strokes	mm
2	3	4	2	3	6
750 14,9+0,1	1 29,5-29,9	0,5 (0,9)			
6,0-6,2	2,0-2,6	0,8 (1,2)			
				÷	
				;	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	rev/min	Interme	diate rated	speed	4	Lower	rated speed	(3) 10	rque control
Degree of deflection of control lever	Control rod travel mm	travel mm rev/min				Control- lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
<u> </u>	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 24	250	5,6	1000	14,9-15,0
	x = 5	,5					250	6,0-6,2	300 450	16,2-16,8 14,9-15,0
ca.67	13,9 4,0 1250	1040-1050 1080-1110 0,3-1,4					345-405	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		Rotational- speed limitat	11.361)	iel delivery paracteristics	Starting t	uel delivery 5	4a Idle stop	
rev/min	emp 40°C (104°F) cm1/1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm //1000 strokes 7	rev/min 8	Control rod travel mm
	nown. Carry out tment on engine		-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.86

40

WPP 001/4 DAF 11,6 K 18

1. Edition

PE 6 P 110 A 320 RS 372-1 Komb.-Nr. 0 401 876 308

RSV 250-1100 P 5 A 508-3

superseder DAF company DKTD 1160 engine 191 kW

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,75-2,95)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm1/100 strokes 3	Difference cm ^{1/} 100 strokes 4	Control rod travel mm 2	Fuel delivery cm 1/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,0+0,1	13,7-13,9	0,4(0,75)			
250	6,6-6,8	0,7-1,2	0,45(0,75)			
				ļ		
L						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	Upper rated speed rev/min			ediate rate	d speed	(4)	Lowe	3 Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800 x =	0,3-0,7	-	-	- -	ca. 21	250 250	6,2 6,6-6,8	850 400	12,2-12,3
ca. 51	11,0 4,0 1425	1140-1150 1275-1305 0,3-1,4					655-71	5 = 2,0	300	12,5-13,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b) Full-load stop Test oil temp 40°C (104°F)				uel delivery naracteristics	Starting I	luel delivery 5	da Idle stop		
rev/min	cm ¹ /1000 strokes	changed to) rev/min 3	rev/min 4	cm ¹ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	travel mm	
LDA 850	0,7 bar 137,0-139,0 (134,5-141,5)	1140-1150*	LDA 600	0 bar 128,0-130,0 (125,5-132,5)	100	245,0-285 (241,0-289		~	

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.85

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D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 K 18

. 2 -

Test at n =

600

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel - difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6PRS 372-1 + RSVP5A 508-3	0,70	0 0,30 0,26	12,0-12,1 11,4-11,5 11,8-11,9 11,5-11,7

Notes

(1) when n =

rev/min and gauge pressure = bai (= maximum full-load control rod travel)

40

WPP 001/4 KHD 15,2 e

2. Edition

PE 6 P 120 A 420 LS 399

RSV 250-1000 P 7 A 460

supersedes **6 • 8 3** KHD

Komb.-N^. 0 401 876 236

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

company BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,95-2,15)

mm (from BDE) RW = 9,0-12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning (torque-control valve)
rev/min	mm 2	cm //100 strokes	cm ^{-y} 100 strokes	mm	cm //100 strokes	mm
750	14,9+0,1	29,5-29,9 (29,3-30,1)	0,5(0,9)	2	3	6
			1			
250	6,0-6,2	2,0-2,6 (1,7-2,9)	0,8(1,2)			
		` ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	1 Upper rated speed rev/min			Intermediate rated speed			Lower	3 Torque control		
Degree of deflection	Control rod Control rod travel travel					Control- lever		Control rod travel		Control rod travel
of control lever	mm 2	mm rev/min	4	5	6	deflection in degrees 7	rev/min 8	9 mrn	rev/min 10	11
loose	800	0,3-1,0	-	-	-	ca. 24	250	5 ,6	1000	14,9-15,0
	x = <u>1</u>	x = 5,75			•		250	6,0-6,2	300 450	16,2-16,8 14,9-15,0
ca. 67	13,9 4,0 1250	1040-1050 1080-1110 0,3-1,4					345-40	5=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Fu	il-load stop	6 Rotational-speed firmtat 3a Fuel delivery characteristics			Starting fuel delivery 5 4a Idle stop				
i	emp 40°C (104°F) cm ³ /1000 strokes 2	Note changed to ; rev/min 3	rev/min	cm ¹ /1000 strokes 5	rev/min	cm1/1000 strokes 7		Control rod travel mm 9	
Not kr	0,7 bar lown. Carry out tment on engine		•	-	100	19,5-21,0 mm RW	-	•	

Checking values in brackets

* 1 mm less control rod travel than col 2

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